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(See pages 11 to 14)

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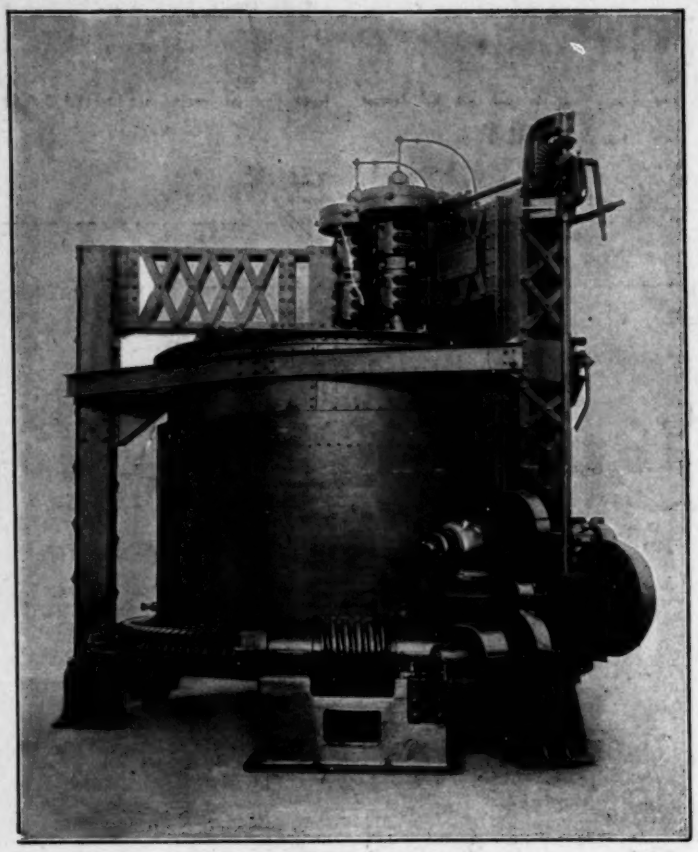

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Increasing the Radius of Profitable Distribution by a Relocation of the Generating Plant

Vagaries of City Growth Present Perplexing Problems to Gas Companies Supplying Large Percentage of Non-Profitable Consumers — Dealing with a Typical Case

By L. W. ALWYN-SCHMIDT

Once in the existence of every gas plant comes a time when the directors will have to make the important decision whether they should rather remove the plant to a more suitable spot instead of increasing it still further or whether they at least should put forward a new feeler in the form of a supplementary plant in the district needing new service. The question is not always easily decided as local conditions and the financial situation of the concern will have to be considered.

There are very few gas plants located so favorably as to be situated practically in the center of their distribution district. In the majority of cases the gas plant hangs somewhere on the fringe of the population center and has to reach its customers by a series of mains. How this condition has arisen is now not easily explained.

It may have had its cause principally in the desire of the founders of the gas company to be located as near as possible to railroad sidings or to make use of cheap tracts of land outside the periphery of the high-priced real estate of the district.

The odor unavoidable with old-time gas making, when the by-products were still unloaded upon a long suffering neighborhood instead of being turned into a valuable asset, also has driven the gas companies into the less populous regions.

The fact is, however, that gas enterprises are placed to-day in the majority of cases outside their real field of distribution and are now anxious to catch up with population conditions in their distribution district.

This question of relocation as against extension has become more pressing during the last few years in consequence of the surprising growth of many cities following the unexampled industrial activity of the country during the war. This has caused an expansion of many cities into unexpected directions, resulting in considerable changes of the center of gravity of distribution.

A Typical Case Described

The situation may be explained best by reference to the chart accompanying this article. This is a prospering community on the lines of those frequently found in the eastern United States. While it was agricultural in character principally when the gas works were erected, it has changed now into an industrial city that has found much new life during the war.

A new industrial district has sprung up in the northwest of the city. The same prosperity has visited a neighboring community which is growing rapidly in western direction and may accomplish a junction with

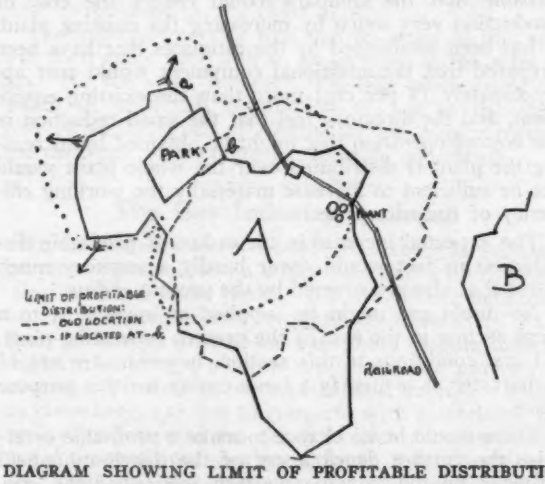

DIAGRAM SHOWING LIMIT OF PROFITABLE DISTRIBUTION
- - - - - OLD LOCATION
..... IF LOCATED AT B
——— CITY LIMITS

the forementioned community in the near future. This city, which may be called B for convenience' sake, also has a small gas works of its own. The chart does not represent the local conditions exactly, but has been arranged for the special purpose of illustrating the argument.

As usual in these kinds of distribution fields the center of gravity of consumption lies in the heart of

the city, in the business district. The gas works were placed as near as possible to the railroad station so as to make use of convenient sidings for the facilitation of the coal delivery.

The gas rate is based upon an average which was working perfectly well before the war, but which has been sadly thrown out of gear during the war.

It will be seen from the chart that the radius of profitable distribution does not follow exactly the circumference of a circle but is rather oblong.

The gas works lose money over the distribution in the southwestern district and are operated unprofitably also in the northwestern district of the distribution field.

The northwestern section is the most important for the future of the gas distribution in that community as it contains a number of new and important industrial enterprises.

Unfortunately for the gas works a park cuts into the northwestern section, while a large tract of undeveloped property narrows down the actual line of approach to a few streets that afford only a limited market for the gas company. The capacity of the present installation has reached its limit.

The problem now under consideration is:

Shall the gas company extend its production capacity, or,

Shall it remove the whole plant to a more suitable location?

Shall it build a new plant in another part of the city and, if so, how large should this particular plant be?

To answer these questions it has become necessary to collect at first a quantity of statistical information that can now be employed as a basis for all further considerations.

Under present operating conditions it appears impossible that the company could reduce the cost of production very much by increasing the existing plant. It has been established by the estimates that have been prepared that the additional equipment would cost approximately 75 per cent more than the existing equipment, and the directors feel that the small reduction in the cost of operation that might be obtained by increasing the plant if distributed over the whole plant would not be sufficient to increase materially the working efficiency of the enterprise.

The expected increase in the radius of profitable distribution in fact would cover hardly a territory much above that already covered by the present radius.

No doubt gas might be supplied at lower cost to a large section in the east of the present generating plant.

Local conditions in this section, however, are not of a character as to justify a large outlay for this purpose alone.

There would be no chance to make a profitable enterprise the further development of the distribution field provided by the growing western section of the city. Each addition to the consumption in that particular section in fact would still add only to the burden of unprofitable distribution carried at the present moment by the plant.

The plan of expanding merely the existing equipment therefore must be dismissed as not changing materially the situation of the company.

In the case presented by the chart two locations appear to be particularly favorable for a complete relocation. They have been marked with a and b. In both cases railroad sidings can be led to the gas works. Both are situated centrally to the two sections of the distribution field. But in removing the plant from its present location it will be necessary to consider the effect of such a removal upon the general business of the company. First there is the cost of the removal itself.

Conditions Affecting Total Removal of Plant

This will be very high under present cost conditions entailing an expenditure of at least one-quarter of the original cost of the present plant. This, added to the existing capital, would reduce the profit at the rate of 20 per cent of the total unless a sufficient recompensation can be found in the reduction of cost of operation and increase in the sales. Any decision, therefore, must be preceded by an inquiry into these two factors.

It seems correct to assume that no relocation of any gas plant can correct the present high cost of production unless it is accompanied by some thorough reorganization of the productive methods of the enterprise which is not very likely to occur. Any saving that could be made consequently must come from the reduction in the cost of distribution caused by the relocation of the generating plant.

How is the new location situated in this respect? It will be noticed that the distribution field contracts in its approach to the northwestern section. The possible new field of distribution takes, therefore, a form very similar to that of the human lungs with the gas plant in the upper parts of the bronchial canal, the gas pipes, running into the two wings in the manner of the air canals of the lungs. It will be seen that this narrows down the field of possible distribution just in its most important part around the gas generating plant.

The plant, therefore, loses a very good opportunity of selling gas at cheap cost to a great number of consumers and equalizing in turn the loss occurring by the sale to consumers outside the radius of profitable distribution.

While, therefore, in theory the plant is placed more centrally it is placed in practice really out of its most promising situation against which it has to show only the chance of selling at less cost to a large industrial district formerly out of its profitable distribution radius and the prospect of increasing its sales materially in this district.

A careful investigation of actual conditions in the case under consideration in fact may show that the loss of consumers in the immediate neighborhood of the plant would be so large as to narrow down actually the radius of profitable distribution in that section of the city that is the best paying during the present time.

On the other hand there may be just a chance of using the existing main lines in such a way as to bring a cheap supply of gas to the projecting southeastern section of the sales territory that can compensate in part for the losses in the northeastern section.

But granting even these possibilities it seems that there is still another very good cause why in this particular case no change should be made in the location of the old plant. This is the possibility of attracting new business from the city approaching from the east. This, like all cities, is bound to grow in western direction and with the facilities for power and gas available in this neighborhood there is just a faint chance of developing quite a field of distribution among that part

of the growing community that oversteps its boundaries into the city A.

It seems, therefore, established that a removal of the plant is not opportune in this instance. Whether it would be the case in others depends from practically the same considerations as those advanced in the present example. The decision must depend upon the likely development of the radius of profitable distribution.

Remains, therefore, the possibility of erecting a supplementary plant in the western section.

Two points must be considered in this case.

Splitting the Plant

Can the new plant be located in a manner as not only to extend the radius of profitable distribution but also to lessen the load upon the main plant?

Will it be more profitable to split the old plant or erect an entirely new unit?

The reader will be inclined to assume that with the introduction of the new plant everything will remain the same in the existing works. This, however, is not the case.

The new generating plant, when properly stationed, takes away from the existing plant part of its production. Take, for instance, the present example and inject a new generating plant in the present system located somewhere in the northwestern district. This would mean that the whole district would be served by the new plant.

But the new plant also has a radius of profitable distribution of its own. If placed too near to the old plant it may easily happen that the two fields of profitable production overlap and that theoretically at least the two organizations enter into competition. It would be to the interest of the company to serve the consumers in the city always from that center that is able to give the cheapest service.

Against this, however, is the very important consideration of making the best possible use of the total investment.

The old plant has been extended to a point as to take care of the whole business of the city. It has, in fact, made part of the gas that is now to be made by the new plant. True, the distribution has taken place at a loss to the company as far as the outlying districts are concerned, but the capacity of the principal plant is all that is actually required. Build a new plant and the full capacity of the old plant is not wanted. This is a very important point as it has a considerable influence upon the cost of production. A plant making four-fifths of its actual capacity naturally runs more expensively per unit than the plant that works to full capacity. So it is always advisable to place the new plant as far removed from the old one as is consistent with local conditions. The new plant must take care of that part of the business of the old plant that could not be handled conveniently, but it must not weaken the productive organization of the whole enterprise.

Here is a rather fine point of business policy. Will it pay in such an instance to divide the existing plant and simply locate part of it at a new spot or should an entirely new plant be erected? The situation is one which demands a very intimate study and, in fact, should not be decided without the consultation of expert opinion. All depends from the conditions of the locality. The questions to be answered are:

Can an increase be expected in the sales of gas inside the profitable radius of distribution of the old plant?

Is the temporary advantage of aiding the supplementary plant large enough to justify carrying a larger overhead caused by the disuse of part of the facilities of the principal plant?

If both answers are in the negative there is a clear case for merely splitting the plant. This still will make operation somewhat more expensive as two plants run more costly than one. Also the transfer of part of the equipment will be costly. But it will also be cheaper than the construction of an entirely new plant.

If the answer must be in the affirmative, and this is the more likely, an entirely new plant should be erected on a spot far enough ahead of the expected new developing business so as not to interfere at all with the principal distribution field of the old enterprise. By handing over to the new plant the non-profitable consumers it will get a sufficient start without weakening the old organization unduly. It will be in the position of any new enterprise that has to create its own field of activity and no doubt will succeed in doing so with the further growth of the city.

The Solution of the Problem

The correct solution for this particular problem of location would be the following:

The old plant remains as it is and retains all the paying business that it can serve profitably, endeavoring at the same time to increase consumption inside its special radius of profitable distribution to the point of full productive capacity.

The new plant is located at a point sufficiently out of reach of the radius of action of the old plant so as not to interfere with its principal field of distribution. This point is indicated on the chart as A.

The improved service that can be given in this way will soon make itself felt in an increase in the sales of gas. All the sales, however, will take place inside the radius of profitable distribution of one or the other plant with the result of eliminating practically entirely the necessity of carrying unprofitable consumers.

The Gas Industry in Japan

In no country in the world has the gas industry greater opportunities, a wider field and a more promising future than in Japan. All the factors necessary for a prosperous and gigantic gas industry exist there: Large towns, an enormous population, industrial buildings, a suitable climate, and native coal deposits, as well as enterprise and capital. There, as elsewhere, gas has to compete with electricity, but as everywhere else gas can hold its own against electrical competition, so also in Japan it has nothing to fear from it. With an area of 156,600 square miles, three times that of England, and a population of 56,000,000, considerably larger than that of Great Britain, it would indeed be extraordinary if the gas industry, with its unnumbered advantages, could not thrive. As regards domestic use for heating and cooking, the climate is obviously an important factor. As might be expected from the great length of the country in a north and south direction, from 50 deg. to 21 deg. both north latitude, there are strongly marked contrasts. The districts bordering the Pacific differ greatly in temperature from those facing

the Sea of Japan (the sea between the Japanese islands and the continent). In the former the temperature is more moderate than in the latter, since equatorial currents wash the shores and they are also protected by mountain ranges from cold winds, while the districts facing the Sea of Japan are directly exposed to the northwestern winds coming from the wide plains of Siberia.

In Japan there are at least thirty towns with populations exceeding 50,000 persons, and there are two cities with populations exceeding 1,000,000—Tokio, 2,250,000, and Osaka, 1,300,000. Other large towns are Yokohama, 420,000; Nagoya, 400,000; Kobe, 400,000, and Nagasaki, 200,000, and there are several with populations exceeding 100,000. In addition there are more than one hundred towns with populations exceeding 20,000 persons. All these cities and towns provide splendid opportunities for gas enterprise.

As the gas industry is dependent on coal, and more especially on local output, some details of Japanese production are important. In the year 1900 coal mining was in its infancy; the output was only 7,360,000 tons. By the year 1908 it had doubled and stood at 14,760,000 tons. During 1915 it exceeded 20,000,000 tons, and may be now estimated around 25,000,000 tons. In addition, probably 600,000 tons are imported, so that the gas industry is assured of the necessary raw material. For street lighting many splendid opportunities occur in Japan. We read of thoroughfares seven miles long and 78 ft. wide. What greater feat could a gas engineer desire than the successful installation of an incandescent gas lighting system? In the towns there are spinning and weaving mills, steel works, copper refineries, type foundries, engineering establishments, carpet, brush, bicycle and other factories, as well as banks, warehouses, shops and residences all suitable for gas installations and many providing tempting opportunities for the ousting of electric installations and the substitution of the most up-to-date gas system, with its manifold advantages.

There are now probably over a hundred gas companies in Japan with a paid-up capital of $50,000,000. The development of the industry during a period of ten years is shown by the most recently available official figures, given below:

Year	No. of Companies	Paid-Up Capital
1906	6	$4,572,000
1907	6	6,206,000
1908	8	8,750,000
1909	8	9,798,000
1910	10	13,515,000
1911	55	20,327,000
1912	74	26,029,000
1913	75	33,375,000
1914	87	39,458,000
1915	91	42,569,000

From these figures several interesting points may be deduced. In 1910 there were ten gas companies, each with a capital of $1,351,000, evidently companies of considerable importance. The following year forty-five new companies were established with an aggregate capital of $6,812,000, equal to an average of $151,300. Obviously these were relatively much smaller undertakings. They may be assumed to be most encouraging evidence of the spread and popularity of gas. Each of these small companies has within itself the germ and faculty of increase into a larger one; each may be described as being in the infant stage, which only requires time to expand and grow. By the year 1915 the number of new companies, over and above the ten companies existing in 1910, had increased to eighty-one and the paid-up capital to $29,054,000, a truly remarkable advance for a period of five years. The tendency for the companies to grow both in number and importance is shown by the average amount of the capital of each.

The coal consumed in 1906 was about 80,000 tons; now it exceeds 520,000 tons. The number of houses supplied in 1911 was 348,607; now it is 650,000. The gas supplied to lamp and the number of motors fitted up have also increased, as is shown in the following tabulation:

Year	No. of Lamps	No. of Motors
1906	196,601	998
1907	249,623	1,261
1908	300,203	1,484
1909	354,948	1,584
1910	404,367	1,673
1911	841,014	2,089
1912	1,183,135	2,324
1913	1,833,610	2,018
1914	1,542,428	2,153
1915	1,474,496	2,002

The number of factories operated by gas engines is increasing rapidly in Japan, as shown in the schedule covering ten years given below. There are now 1,660 gas engines, with a horsepower of 28,318:

Year	No. of Engines	Horsepower
1907	423	4,745
1908	506	7,673
1909	831	11,229
1910	779	18,764
1911	956	24,625
1912	1,246	31,971
1913	1,443	41,400
1914	1,655	42,984
1915	1,620	43,101
1916	1,660	48,318

These factories may be divided into groups—textile factories, machine and iron works, and chemical works. Of the textile factories, the largest group consists of 677 weaving sheets; there are 13 spinning mills, 27 throwing mills, 31 cotton grinding and refining mills, 28 bleaching, dyeing and finishing works, 25 knitting and braiding works, and various smaller classes. The machine and iron factories group is made up of 93 machine-making works, 33 shipbuilding yards and carriage-making works, 45 tool works, and 89 foundry metal and metal-ware works. The chemical factories group consists of 160 different establishments. There is a large group of food and drink factories using gas engines. These number 95 in all of 1,441 hp., and include 37 breweries, 15 rice and flour mills, 15 mineral water, lemonade and ice works, 11 confectionery works, and many others. There is a large group of 51 ceramic works using gas engines of 1,603 hp., and 29 paper mills requiring

3,431 hp. In addition, there are 16 oil and wax works, 16 medicine and chemical works, 10 soap and candle works, and 7 manure works that are all fitted with gas engines. A large miscellaneous group of 194 works use gas engines of 3,016 hp. These include printing and publishing works, 33 wool and bamboo works, 17 electrical industry works, with 1,627 hp., and 109 gas industry factories requiring 4,336 hp. Practically every industry is represented. The Japanese Government in its numerous factories and departments uses 16 gas engines with a total of 2,860 hp., distributed as follows: The Cabinet printing office, 2 gas engines of 77 hp.; the finance department, 1 gas engine of 30 hp.; the military department, 6 gas engines of 352 hp.: the navy department, 3 gas engines of 70 hp.; the department of agriculture and commerce, 3 gas engines of 2,312 hp.; and, lastly, the department of communication, 1 gas engine of 19 hp. Summing up, those interested in the gas industry in Japan have every reason to be satisfied with the position attained and with the promise of future expansion. The large population, with its requirements and property, has benefited by the comparatively recent introduction of gas; and as the advantages of gas are now fully understood and appreciated, the gas industry in all its forms has a great future, not only in Japan proper but also in the neighboring Korea and Formosa.

One large town, Yokohama, has raised a gas loan in two issues and has established a precedent which other Japanese towns may follow. The first issue was for $317,500, the whole of which, except a small balance, has been redeemed. It is likely that by this time the whole has been redeemed. The rate of interst was 6 pr cent and the price at which the bonds were taken up was 95. They were sold abroad at 97.50, giving the underwriters a 2½ per cent profit. The second issue amounted to $588,000, of which $36,000 has been redeemed. The rate of interest of this second issue was 5 per cent, an improvement on the first issue. On the other hand, the price at which they were taken up by the underwriters was 92.50 and the price at which they were sold in foreign markets was 97.50.

As regard labor, the men work 359 days every year and above the age of fifteen years are paid 27 cents a day, equal to $97 per annum. Female workers receive precisely half this amount.

At Least Fifty Per Cent of Extracts Require Heat in Their Production

Gas the Most Satisfactory Fuel—Reasons Why, and How the Extracts Are Made

By GILBERT C. SHADWELL

The number of extracts on the market is quite large and it is probably safe to say that at least 50 per cent of them require heat for their complete production.

That gas is the most satisfactory fuel is due to the fact that in many cases the heat has to be gentle—often in the form of a water bath which is gotten by means of a water jacketed kettle, and the heat must be capable of being readily manipulated and under proper and quick control.

Different fluids of the acetic, alcoholic and ethereal types are used as solvents in the preparation of many extracts with which most people are very familiar. Which one is used depends upon that which is best adapted to the solubility of the substance from which the extract is being prepared. The solution is effected either by maceration, percolation, infusion or decoction as circumstances require.

The solution thus obtained is poured off and the remaining soluble matter either pressed or washed out and added to the solution. It is next allowed to settle, then decanted and strained or filtered, and if this fails to render the liquid clear, it is clarified by white of egg and filtered, canton flannel, first soaked in water, being generally used for this purpose.

When water, acidulated with acetic acid is employed, vegetable substances are usually macerated in it, or the dilute acid is sprinkled over the bruised plant; if fresh and the juice expressed (pressed out) by strong pressure.

The solution thus obtained, or the juice when obtained by expression from fresh substances, is then evaporated by "boiling down," until thick enough to cause some risk of burning when it has to be completed in a water-jacketed kettle or else placed in an evaporating pan at evaporated by hot air in motion to a proper consistency.

Fluid Extracts

Fluid extracts constitute a form of preparations which was introduced into the United States Pharmacopæia for the first time some seventy years ago as a distinct class of preparations. Their distinctive character is the concentration of the active ingredients of a substance into a small bulk and in liquid form. Their advantages consist in greater convenience of administration, and in the fact that from the less degree of evaporation to which they have been subjected, the active principles they contain are less liable to have suffered injury by heat.

The main difficulty lies in their liability to undergo spontaneous decomposition. This is counteracted in some cases by the addition of sugar, in others by alcohol and in others again by a mixture of both. Some fluid extracts when combined with sugar have a tendency to precipitation, rendering them turbid or cloudy in appearance. To obviate this the use of glycerine has become fairly general in some cases. The use of glycerine while it has the same preservative influence, possesses the property of dissolving the matter which would be deposited by the use of sugar. The solution

for preparing them is obtained by percolation, and the medium used is alcohol or alcohol and water, the proportion of each depending on the nature of the substance to be extracted.

An example is seen in cherry extract, so called, which consists of oil of bitter almonds, 2 drams; apple oil, 1 ounce; citric acid, 1 ounce, and alcohol of 70 deg., 2 pints.

But a far more common extract used to a great extent in filling medical prescriptions and of distinct interest to the gas men is the extract of Cinchona. This is formed as follows: Sixteen ounces of yellow cinchona bark are first ground to a coarse powder and to this is added sufficient distilled water (derived from a gas-fired still if the gas man is on the job), and 1 ounce of rectified spirits. The bark is macerated in 40 ounces of water for twenty-four hours, packed in a percolator and water added until 240 ounces have poured through or until the bark is exhausted. The liquor is then evaporated until 20 ounces are left at a temperature

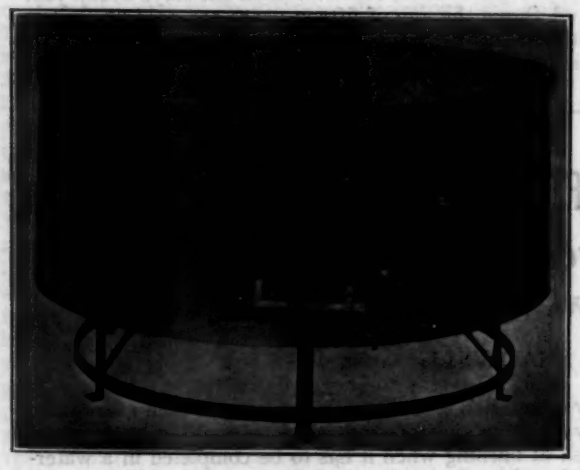

FIG. 1.—SHOWING TYPE OF SHALLOW PAN USED ON A GAS STOVE

of about 70 deg. Cent. (i. e., 160 deg. Fahr.). At this point the liquid is filtered and the evaporation is brought down to 3 ounces, or until the specific gravity is brought to 1.200. The cauldron furnace familiar to gas men will take care of the work most readily, especially when water-jacketed, although the process must not be hurried unduly. A method also often used in evaporation is to employ a shallow pan over a gas stove such as is shown in Fig. 1.

When the liquid is cold, the spirit is gradually added and, of course, it must be constantly stirred. The measures given are for convenience only, but the proportions hold good for any reliable size of "batch."

Cocoa or chocolate extract is, of course, exceedingly well known and a modification of it is used to a great extent in soda fountains and, in fact, as a commodity to a considerable degree. The proportions and method used are as follows: A turned copper kettle is generally used in the form of a cauldron furnace or else a plain copper kettle is placed on a confectioner's furnace. To each quart of water made boiling hot, 1 pound of chocolate is added. It is then allowed to cool and the cocoa butter is removed in the usual way. Then 4 ounces of glycerine are added and the product is added. This is the standard formula as adopted by many ice cream concerns, although sugar is often submitted for the glycerine, owing to the fact that the latter freezes at so low a temperature. There are, of course, a vast number of coffee compound extracts. That used for dispensing consists of the following proportions: ground Java coffee, 8 ounces; sliced vanilla bean, 2 drams, and diluted alcohol according to requirements.

A More Usual Form

A more usual form, however, consists of the following proportions: Ground wasted coffee, 2 to 8 ounces; cinnamon, bruised, 60 grains; vanilla, sliced, 60 grains; diluted alcohol. The ingredients are moistened with some of the liquid and packed in a percolator. Then enough of the diluted alcohol is put in to have a stratum above it. This is macerated for forty-eight hours, covered. It is then percolated by pouring on enough diluted alcohol until 32 fluid ounces of extract is obtained.

So much for the compound coffee extracts. The plain coffee extracts are handled rather differently. That known as Liebig's, used for dispensing, is formed as follows: To each 2 pounds of best ground coffee 1 quart of boiling water is required. The kettle used is the same form as that referred to in the making of cocoa extract. The mode of operation is similar. After the coffee is added to the water it is allowed to stand one hour and then placed in a percolator. Enough water is added to obtain 32 fluid ounces of extract. To the quantity mentioned 2 ounces of alcohol are required as a preservative, but usually more is needed if the extract is for export purposes or is to be stored for some time before use.

Sometimes the method adopted is to put the coffee in the kettle and then to each pound 1 quart of cold water is poured in. The gas is then turned on, lighted and the contents are heated gently for some thirty minutes. It is then allowed to come to a boil, after which it is cooled for two hours and strained. To the above quantity 4 ounces of glycerine or the equivalent of sugar syrup are added as a preservative. A kettle set on an industrial stove is also an excellent method. The gas salesman will therefore see that his chief market for furnaces for the purpose of making these kinds of extracts lies largely among the manufacturing druggists, the manufacturing bakers and confectioner's supply house and the ice cream, soda fountain and syrup supply manufacturer. But do not let the mistake be made that the "big feller" is the one mainly interested. The smaller man is often a very good customer and should be cultivated.

In the Medical Field

An extract used largely in medicine is extract of ergot. This embodies an evaporating process sometimes carried out in an evaporating pan, sometimes in a kettle but usually by a combination of the two. The cauldron furnace plays a large part in all of this class of work and it can be direct heated very often, although in this case the temperature required should be below the point of boiling water so that a furnace of the water-jacketed type should be employed.

The method employed then is as follows: Sixteen

ounces of ergot in coarse powder are needed to each 20 ounces of ether and 70 ounces of distilled water and 8 ounces of rectified spirit. The ether is agitated in a closed container of special design with half its bulk of the water and after separation the ether is decanted. The ergot is placed in a percolator and freed from oil by passing the washed ether through it; the marc is removed and digested in the remainder of the water for twelve hours at 160 deg. Fahr. The liquor is then pressed out and evaporated down to 90 ounces. When cold the 8 ounces of spirit are added. It is then allowed to stand for an hour to coagulate, after which it is filtered, and the quantity made up to 16 ounces for each 9 ounces. A solid top table stove is of use in carrying out work of this kind.

The making of ginger extract is of quite a different class. Ginger, in what is known in the trade as No. 40 powder, is taken to the extent of 50 ounces avoirdupois, with alcohol enough to make 3 pints. This packed in a percolator, first moistening with 14 fluid ounces of alcohol. Enough alcohol is added to leave a stratum above the powder. When it begins to percolate, the lower orifice is closed and the top of the percolator covered closely. It is allowed to stand for forty-eight hours and therefore it "soaks," so to speak. It is then opened and allowed to percolate until exhausted. The first 43 fluid ounces of the percolate are reserved. The rest is evaporated to a soft paste which is dissolved in the reserved portion, and enough alcohol is added to make the fluid extract measure 3 pints. This extract is given as a medicine and its strength can be realized when it is stated that the dose is from 10 to 20 drops. The evaporating is generally carried out, it may be added, in an enameled water or jacketed furnace with a goose neck at the top and often a receiver and condensor to recover the alcohol evaporated off. The temperature is about 70 deg. Cent. (i. e., 160 deg. Fahr.)

There are alternative methods which are used. The extract for dispensing called Creuse's Process consists of 1½ pints of fluid extract of ginger as already described, 3 pints of water and 3 ounces of magnesium carbonate. This is mixed, put in an automatic shaker for some twenty-four hours, filtered and evaporated to ¾ pint and afterwards ¾ pint of alcohol is added.

Ginger ale is so common in this country that it is hardly out of place at this point to speak of ginger ale extract, which is used in the manufacture of the finished product. It consists of soluble essence of ginger as already spoken of 1½ pints; essence of (soluble) lemon, 1½ ounces; essence of ginger oil (soluble), 1½ ounces; extract of vanilla (soluble), 1½ ounces; soluble essence of rose oil, ¾ ounces; soluble tincture of cinnamon, 1½ drams; artificial essence of pineapple, ¾ drams; essence of capsicum, ¾ dram. This is mixed together in the usual way.

Malt Extract

We now come to malt extract which has a very large sale, indeed, either by itself or in combination with other compounds such as cod-liver oil, etc. There are numerous ways of making it, but heat is required in every case.

Generally an infusion of malt is made in water at 160 to 170 deg. Fahr., drained off without pressure and evaporated to a honey-like consistence. The quantities are in proportion of 1 pint crushed malt in 3 pints water brought to the temperature mentioned in the water-jacketed furnace. The infusion occupies about four hours. Steam is largely used but the water-jacketed method can be employed.

A modification consists of the proportions: 47½ ounces of the malt extract mixed with 1 ounce iron pyrophosphate and ammonia citrate dissolved in 1½ ounces of water. This sells as pyrophosphate of iron and malt extract. A number of medicinal preparations are made in a similar way with malt extract as the basis. Liebig's meat extract is well known as are others of a similar nature and meat extracts have a ready sale. The best type of furnace is that with a specially made aluminum kettle, but the regular tinned copper type will do very well also. To each pound of meat (which includes lean meat only), 128 ounces of water are needed. This is put into the kettle with the water cold, and it is agitated well for some ten minutes.

The best results are gotten if the meat is recently killed and chopped fine. After agitating, the gas is turned on and the temperature brought up to a boil. It then is allowed to simmer gently for a few minutes, and is then strained through a sieve while still hot by being run out at the bottom through the outlet and the sieve. It is then placed in another furnace and evaporated to a soft mass, a suitable amount of salt being first of all added.

Rhubarb extract is made by adding 50 ounces of distilled water and 5 ounces of rectified spirit to each 8 ounces of sliced or bruised rhubarb. It is allowed to macerate in an enameled kettle for four days. It is then strained and allowed to subside. The clear liquid is then decanted, strained and mixed. It is then placed in a water-jacketed furnace and evaporated at 160 deg. Fahr. to a proper consistence. The so-called rhubarb compounds consists of 3 drams of extract of rhubarb, 1 dram of extract of aloes softened with 4 drams of water and then evaporated to an extract. This is then dried and powdered. The drying can readily be taken care of by means of a gas-fired air heater and blower used in conjunction, which can easily be built to suit local conditions at a relatively small expense.

The last of the important extracts to be considered in detail is sarsaparilla. In making this they take to each 16 ounces of Jamaica sarsaparilla, which is cut transversely, 280 ounces of distilled water which is heated to 160 deg. Fahr. with the addition of 1 ounce of rectified spirit. The sarsaparilla is macerated in half the water for six hours and the liquor decanted. The residue is digested in the remainder of the water for six hours more and the liquors are then mixed, after which they are expressed and filtered. After which the liquid is placed in a water-jacketed furnace to 7 ounces if the quantity mentioned is taken or, better still, we may say that it is evaporated until the specific gravity reaches 1.130. It is usual to add the spirit to the evaporated material when cold. A method which is more commonly used among the smaller manufacturers is to take 3½ pounds sarsaparilla, 5 gallons of distilled water and boil to 12 pints. Then they pour off the liquor and strain while hot. Then they again boil the sarsaparilla in 2 gallons of water to half and strain. The mixed liquors are then evaporated to 18 fluid ounces. When cold, 2 fluid ounces of rectified spirits are added.

There are, in fact, different kinds of sarsaparilla extract, that most commonly used by soda fountains is

the so-called sarsaparilla syrup for carbonated or aerated water. It is made by to 1 gallon of simple syrup, 10 drops of anise oil, 20 drops of wintergreen oil, 6 ounces of caramel or burnt sugar for coloring and 20 drops of oil of sassafras, while the sarsaparilla is left out simply for the sake of economy. The oils should be first of all placed in some sugar and rubbed in a mortar, or mixed with some strong alcohol before adding them to the sugar syrup. The honest fluid extract of sarsaparilla is, however, made by cutting the roots very fine or buying them in powdered condition and moistening 16 ounces with one-half pint of diluted alcohol. It must be allowed to stand one-half hour; it is then packed closely in a percolator, the surface being covered with a disk of cloth, muslin or linen to prevent the disturbance of the powder. Then these are poured on gradually, 2 pints of alcohol diluted with 1 pint of water. When passed through, evaporation at a moderate heat is taken care of. The temperature is usually about 150 deg. Fahr., and, of course, a water-jacketed kettle must be used. The evaporation of the quantity named must be carried down to a pint. Then 10 ounces of sugar must be added and the whole thing strained while hot.

It will be seen that boiling is not applied, as a temperature of 212 deg. Fahr. or thereabouts, destroys the essential virtues of the drug.

There is also a compound extract of sarsaparilla made like the above with the addition of a little guaiacum wood, pale rose senna and licorice root. After preparation a few drops of anise, sarsaparilla and gaultheria oil are added in the manner above mentioned. The latter compound extract is also very often made by druggists with the sarsaparilla entirely left out.

It would hardly be worth while to give further data on this interesting phase of the subject as it is rather the temperature needed, the style of furnace or furnaces required and similar data which are needed by the industrial man.

Soup Extracts

We will, therefore, conclude by saying a few words first on what is in effect a soup extract and finally on the commonest culinary extracts.

The soup extracts have endless names, many of which will immediately occur to readers. Most of these contain vegetables in some form or other which are boiled for six hours in a bain Marie and squeezed. In the liquor which comes from the vegetables, bones and beef are simmered for the same length of time as the vegetables. The fluid is then strained off and on cooling the fat is skimmed off and, after a while, a part of the fat is added again together with about 30 per cent of salt. The liquid is then evaporated in a cauldron furnace until it has the consistency of syrup. Many such evaporating kettles are operated with steam and a vacuum, but the small man finds this rather too expensive in first cost and does not appear to feel that he gets a sufficient return on his investment. Hence this class of manufacturer always seems to be a good customer from the industrial man's viewpoint.

The making of other culinary extracts such as strawberry, vanilla, lemon, etc., often consists of such variety of substitutes that a general rule is difficult to be given, but many require no heat at all for their formation. An example of a strawberry extract substitute is of interest: pp pineapple oil, 1½ ounces; tincture of orris, ¾ ounces; tartaric acid, ¾ ounces; alcohol, 80 per cent, ½ pint.

Vanilla is made up as follows: To each 1 ounce of vanilla bean, cut up fine, 2 ounces of sugar are added and ground up, 8 ounces of rose water, 24 ounces of alcohol, 95 per cent, are mixed together and added the vanilla and sugar to the extent of about 50 per cent. This is put in a displacer and the remaining 50 per cent added if not dark enough. This is the real extract of vanilla but what is usually bought in the stores is but a poor substitute.

There will be found a number of concerns making extracts of all kinds throughout the country and it will pay to look them up. In most cases at least one direct heated and one jacketed cauldron furnace can be sold these customers.

Use of Gas in a Type Foundry

Fry's Metal Foundry, makers of alloys of tin, antimony, lead, copper, etc., including the well-known "Fryotype" printing metals, has just opened an extension to its London (England) foundry. The following is reprinted from the (London) Gas World: As a result of experience gained in the past few years the management came to the conclusion that the new works should be equipped entirely with gas-fired furnaces. This work was carried out by the South Metropolitan Gas Company. The installation comprises one 7-ton and six 2-ton furnaces, one 300 lb. crucible tilting furnace, and a number of smaller furnaces. These consume approximately 5,000 cu. ft. of gas per hour, and air for combustion is supplied by a fan at a pressure of twenty-five tenths. The working temperatures are controlled by a pyrometer. With the gas furnaces it is estimated that the new branch will be able to mix, superheat and pour two batches of metal per day, whereas with the coke-fired furnaces at the Manchester foundry the firm is not able to turn out one melt per day; so that the output is doubled by the use of gas. In addition to this there is a saving, even at the present price of gas; and, which is perhaps more important, the workmen say that the conditions of labor are much better than in the old days. The plant is easier to control, cleaner to work, and the necessity to draw fires has been done away with.

All the heating of the new offices is done by gas, which is also employed to provide hot water for the staff. The management are entirely satisfied with the new conditions, and talk of displacing the coke furnaces in the Manchester works by gas.

Use for Xylol

In reply to an inquiry as to whether toluol can be used instead of xylol, which is unobtainable, for preventing naphthalene deposits or clearing mains of naphthalene, the Carlsruhe Research Station says that xylol is far more efficacious than toluol. Toluol may be used in case of need, but is not nearly as reliable as xylol even though used in larger quantities. Where naphthalene tends to condense, xylol also tends to condense so that a fluid mixture is obtained which may be easily removed. Toluol, under similar circumstances, tends to linger in the gas and to foul the mantle. On the other hand, solid naphthalene tends to a certain extent to absorb toluol vapor and to become deliquescent, but the use of toluol instead of xylol can only be recommended as a last resort.

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As the Journal Views It

Too Serious a Responsibility to Be Placed in the Hands of the Irresponsible

That the average human being could see a fellow fall stricken in the streets and pass on without stopping to aid him seems inconceivable. Yet what men will not stoop to as individuals apparently they will as groups.

The coal miners left millions without relief facing the prospect of killing temperatures to gain a selfish interest. In the largest city of the land, a vast population, stricken with a grave epidemic and facing zero weather, is apparently powerless before that group of workers who keep the home fires burning.

The fact of the matter is we are crowding too close together in these United States to longer be able to trust to the old-time haphazard methods we once managed to survive.

A strike of apartment house and hotel firemen in a large city might well entail, not only cold houses, but property damage as to plumbing that could run up into hundreds of thousands of dollars.

In the large city of to-day, in the multi-family dwelling, certainty of heating service assumes an importance comparable to cost of heating service.

Gas heating service eliminates the human factor. Were the apartments and hotels of the world's largest city to-day equipped with gas heating equipment and were the city provided with a gas plant and distributing mains capable of carrying the tremendous load, a load possibly hundreds of times greater than any hitherto known, it could grin at its striking heat providers and invite them to go to it. Certainty would be substituted for tragic uncertainty.

This incident, with the recent coal strike, appears as the handwriting on the wall.

Beginning now and continuing through the years, gas companies would do well to search out vigorously and secure summer business.

A vast house heating load is not going to come suddenly upon us, to engulf us, though doubtless it could be easily gotten were we to go after it, but this would be impractical. It is inevitable, however, that before a decade has passed a tremendous winter house heating load will be a factor in our business, whatever our attitude towards it. The way to prosperity and the stabilization of the gas business lies in finding the summer business to counterbalance it.

Encourage Initiative on the Part of the Commercial Manager

The best way to sell any appliance in the gas field is not to shoulder the burden of the creative thinking on to the appliance manufacturer. It is true in nine cases out of ten that the manufacturer most ably discharges the obligation. Nevertheless, the practice is fraught with damaging possibilities to the gas company. It is damaging to morale and contributes to mental laziness on the part of the gas company commercial manager.

A kindergarten teacher does not have to be told who is the child that is dressed and undressed by his parents or a nurse, or which child has someone sitting beside him at the table seeing that he takes his food. She finds this out in the difficulties she encounters in teaching him. Such a child looks to the teacher to do all the work. No sense of responsibility to make an effort on his own part seems to occur to him. However bright he is, he lags behind in his classes until he acquires the habit of doing things for himself.

In these days of financial stress there is particularly a temptation on the part of company managers to confine the commercial manager to publicity originated and gotten out by the appliance manufacturer, and to reject anything devised by him. It costs a certain amount more to be original.

The one who succumbs totally to this temptation not only gets the commercial manager into lazy mental habits, but in time actually undermines his power of doing things for himself.

It is an unfortunate gas company that is not equipped with a commercial manager capable of originating selling schemes. Ready made campaigns are very useful and necessary and are to be highly recommended for interspersing here and there, but pertinent campaigns devised by a local man cognizant of particular ways to get at his particular people are a prime necessity.

Many gas companies at one time or another have sensed a lack of individuality on the part of their commercial departments. Few have realized that this lack is due to their restricting or discouraging initiative on the part of the commercial manager. They have accustomed him too much to having his thinking and origination done for him. But gas companies do not always reason the matter out thus completely. They reform the commercial department by the short shift of cleaning house. The machine, or the commercial manager, who has become obsolete through lack of use is given equally small consideration.

In the gas business one cannot think but of the emergencies of the day. One must think likewise of the morrow. The work-horse type of commercial manager is a valuable asset. He knows the company, and its ideals and its people. It is a short-sighted economy that will allow him to permit his thinking abilities to corrode from lack of use.

From the Journal 60 Years Ago

The JOURNAL, noting that to an English gas company belongs the credit of introducing gas lighting into Germany, states that the city of "Berlin (partly), Wein, Koln, Frankfurt, A. M., and Aachen are lighted by gas made in English works."

The JOURNAL has a valued big space advertiser, one Albert Potts, whose consistent full page "spread" has apparently stirred the envy of the London Journal of Gas Lighting. The latter ran a cartoon which shows the proud parent—the aforementioned English journal—none too easy in mind as to his offspring, especially breezy youth representing the American effort. The JOURNAL takes an unholy glee in reproducing this, even unto the ominous background of gas journals which have made their bid and floundered. Incidentally, it accorded the JOURNAL an opportunity to say a few kind words about Mr. Potts. Such space users, it reasoned evidently, must be encouraged.

The largest German gas company is noted as having an annual output of 362,897,300 cu. ft.

Lighters of public lamps in New York City are given one hour to complete their lighting of street lamps. They are to be equipped with: One cleaning ladder, one lighting ladder, one pair of tongs, one pair of pliers, one brush and friction matches.

Those who boast the wide variety of uses of gas today may well heed the variety of appliances Bramhall, Hedge & Co. had to offer in February, 1860: Gas cooking stoves—eight sizes—gas steak broilers, gas smoothing irons, gas nurse lamps, gas bread toasters, gas hatter's irons, gas laundry stoves, gas bathroom stoves, gas heating stoves, gas oyster roasters, gas ovens—five sizes—miniature gas furnace.

The Kensington, Pa., Gas Company paid a 6 per cent dividend Feb. 1. The company, having sold out to the City of Philadelphia, will pay no more.

In Spite of the Fact That Gas Has Been in Use Over 100 Years, Many People Have a Wrong Impression About It

Peterson Uses One of His Windows for De monstrations to Correct Wrong Impressions —Correcting Wrong Impressio ns of Greater Importance than Demonstratin g Advantages

By S. G. ADDISON

"Mr. Peterson," said Tom Bangs, one of the new salesman, "I have been very greatly surprised to learn how many false ideas many people have in regard to gas. Since gas has been in common use now for a hundred years I thought that everyone knew more about it than many people seem to know."

"Just what particular thing have you on your mind now?" asked Peterson.

"You know that little dry goods store where the fire was the other day? I called upon the proprietor to-day and asked him how the fire started. He said that it started from the gas burner in the window. I asked him how that happened and he said that the night of the fire the cylinder on the inverted burner he has in his window broke and he left the lamp burning without a cylinder. He also said that during the night the mantle broke and dropped onto some goods on the floor of the window setting them afire. This is the cause he is giving to the fire adjuster."

"Do you think that the insurance adjuster believes this to be the real cause?" queried Peterson. "In fact, do you believe that the man who owns the store that burned believes this to be the cause?"

"I had not thought of that, but I do know that this man is telling a great many people that this is the cause and that many of them are believing it. Unless we can counteract what he is saying I don't see how we can prevent it having a bad effect upon gas lighting."

"Did you demonstrate to this man that no fire could start in the manner that he says his fire started?"

"No. I told him that it could not, but I did not demonstrate the fact to him. The thing was so apparent that I did not see the need of doing so."

"Statements made without proof rarely have the desired effect. If this man thought that the fire started as he says it did, he would still be likely to expect you to deny that a fire could start in such a manner. If you did not deny it you would be admitting that gas is not a safe illuminant for window lighting. Even if he knows how the fire started but only thinks that a fire could start in the way he describes, he would still expect you to deny it. The only way is to prove your statements and the best way to prove it in this case is through a demonstration. I will show you."

Peterson then went to a side bracket where an inverted gas burner was burning. Using a couple of handkerchiefs to protect his hands from the heat, he removed the globe and the cylinder, leaving the mantle bare. He then asked Bangs to hold his hand under the mantle and within a foot of it. In fact, to hold his hand so close to the mantle that he could feel the heat of the burner. Peterson then broke the mantle with the end of a pencil and allowed it to fall into Bangs' hand.

"I didn't realize that those mantles cooled off so quickly after falling out of the flame," said Bangs. "I wish that I had thought to make a demonstration like this when that fellow told me how that fire started."

"It would have been better. It is always better to prove every statement that you make in self-defense by means of a demonstration."

"I will remember that in the future and try not to let anyone else get away with anything like this."

"You will find that a great many people have a wrong impression in regard to gas. This is the case in spite of the fact that gas has been in use for over a hundred years. I believe that the reason for this is that gas companies and gas men have not always proven their statements by means of demonstrations. Most of these false impressions can be corrected through demonstrations. I have been planning to make such a demonstration as I have just made before you in one of our windows next week. You know that we use one of our windows a good deal of the time for demonstrations. By means of demonstrations we are able to show the good points of our appliances and our service, and we are able to correct wrong impressions, and correcting wrong impressions I believe to be of even greater importance than demonstrating advantages.

"I remember one time when I was

opening up some new territory in a suburban territory. In this territory electricity had been in use for more than ten years, but on account of the fact that the houses were on the average rather far apart there had never been any gas. We had run some high pressure mains through the district and it was my job to secure customers. I never saw so many people filled with false impressions in regard to gas as I found there. There were people who were sure that if they cooked with gas the food would have a gas taste. I am rather inclined to believe that these people believed that the food would be poisoned if they cooked it with gas.

"The most common obstacle I had to overcome was fear of the gas range. There were a number of people who were afraid of the range. They feared that the gas might be turned on and that everyone in the house would be killed. The peculiar thing about the situation was that none of these people were afraid of electricity. They had used it so long they had become accustomed to it and did not mind if a few people were killed. They knew it was due to their own carelessness. A gas range, however, was different. They were not familiar with it.

"Each of these houses were using a kitchen range so I began asking them if they were afraid of the coal range. They were not. Then I asked them if they knew how dangerous these ranges were; if they had not heard of people who had been asphyxiated from the gas escaping from a kitchen coal range. In nearly every case they had heard of someone who had met with such an accident. In each case, however, they considered that it was due entirely to carelessness.

"At that point, I would ask them if they minded if I put a shovelful of coal on their fire. Their curiosity would have been aroused to such a point by the question that they rarely objected. I would then place some fresh coal upon the fire and call their attention to the flames. I showed them that these flames were the gas that had been expelled from the coal that was burning. I also called their attention to the fact that their range was far from gas tight. Often there were cracks or openings between the lids and the top of the range which gave a view to the interior of the stove. I pointed out to them all these places where the gas that was generated could escape, and that if the fire was not sufficiently hot when the new coal was added or the drafts were not sufficiently strong that unburned gas was bound to escape.

"I also told them about the poisonous snakes which bite without any warning and the rattlesnakes which always rattle before making an attack, and asked them which they would consider as the most dangerous. Of course, they replied the snake which gave no warning. I then went on to show them that the gas from the kitchen range did not have a strong odor; that enough of it could escape into the room to kill a person before that person was fully aware that the gas was escaping.

"I pointed out to them that in the case of the gas range there were not a large number of places where gas could escape, that the gas was under complete control and also that the gas we supplied had a strong odor which, like the rattlesnake, gave due warning before it became dangerous so that if any leak should develop, which was hardly possible, the people in the house would have ample warning and could shut off the gas, while in the case of the coal range it would not be so simple a matter.

"You would be surprised to see how interested these people became. Many of them not only purchased gas ranges and water heaters, but also removed their coal ranges altogether. When they learned what a dangerous thing a coal range is they did not want one in their kitchen at all.

"A coal range is really a dangerous thing to have in the house. It is a source of danger due to the gas that may be generated through careless handling; there is an added fire risk especially if the servant girl persists in using kerosene or gasoline when kindling the fire, and it is a general nuisance.

"All this is not only true but it is an expensive thing to have around. It is extravagant in the use of fuel, does not cook the food as well and requires more time to accomplish results. If people only knew how unsatisfactory a coal range is, none of them would be using one to-day. In order to install the maximum number of all gas kitchens we have got to use a certain amount of this scare selling. It usually works and I can see no objection to it if not carried too far. In any case, be sure to prove your statements by demonstrations or by facts that you and the customer both believe are facts."

With this the new salesman left with a considerable more confidence in gas than he had had when he entered the office.

The Psychology of Lighting

Much has been said and written on the subject of artificial lighting and its improvement and adaptation for various purposes. But there is a phase of the general question which has heretofore been given little or no consideration. Herbert A. Wagner, president of the Baltimore (Md.) Consolidated Gas & Electric Company, made an address before the Illuminating Engineering Society, in which he set forth what he called "The Phychology of Artificial Lighting."

In carrying on our daily work, whether it involves either mental or physical exertion, in seeking instruction in diversion from usual activities, or recreation, the results depend largely upon our attitude of mind. It is essential for either mental or physical efficiency that the mind shall not be antagonistic to its environment, or putting it conversely, that the environment must not antagonize the mind nor require a struggle on the part of the mind to adjust itself. In other words, the mind must be free from adverse impressions or suggestions. Indeed we can go a step further and say that, if possible, the mind should be stimulated by its surroundings. My discussion will be directed to the mental effect of light and artificial lighting.

In order that artificial light may be salutary rather than antagonizing to the mind the broad essentials to be considered are:

First.—That the light shall not produce discomfort.

Second.—That it shall not be inadequate.

Third.—That it shall *produce cheer.*

The first two involve eye strain, and their avoidance or correction produce *eye comfort.*

These two refer to physical effects and act on the mind only indirectly. They are directed to the avoidance of antagonism.

The third consideration, on the other hand, is a thing apart and purely mental. Up to the present time I fear that this third factor has been sadly neglected—that light shall produce cheer to the mind.

As an example of cheer I would

ask you to consider the effect of a blazing wood fire on the hearth upon one entering a room on a cold evening. We all know what a cheering effect this has upon us.

We know how different the effect of an open fire is from that produced by a hot stove or radiator in the floor. But have you considered that a blindfolded person would not be able to appreciate the difference? It is not the heat which produces the cheering feeling, but the lighting effect of the blazing wood, the play of light and shade, the shadows cast, the intermittent floods of light.

The effect is mental rather than physical.

In order the better to determine the desired characteristics of artificial lighting it is well first to consider the characteristic effects of natural lighting.

Sunlight is our standard. Does it meet the three broad essentials which we have laid down for artificial lighting? Perfectly. Now, let us see in what way it does so.

First.—It does not produce discomfort, for the reason that, except at times near sunrise and sunset, it does not shine in our eyes. It is a source which by its very position does not intrude itself upon the eye.

Light is intended for illuminating that which we are looking at and not for blinding that which we are looking with. To carry out this characteristic in artificial lighting we must never have a brilliant light where it can shine in the eye, or at least where it is not screened from the eye.

When the eye encounters a bright light it has to adjust itself painfully, and when finally so adjusted it is out of adjustment when it is turned to the object it wishes to see, and must again seek adjustment. This is the most common source of eye strain.

Second.—Sunlight produces adequate illumination. Equivalent illumination *can* be produced artificially, but our usual standards of practice are very, very far below this, and almost always too far below for eye comfort. Insufficient light is another common source of eye strain.

Now, many of the types of artificial lighting used and proposed fulfill these first two essentials for lighting and secure eye comfort, to some degree comparable with sunlight. The best types usually fall within the class of indirect and semi-indirect methods and one indirect system is actually known as "Eye Comfort."

These methods usually aim at more or less perfect diffusion of light and uniform illumination. Do they imitate, in so far as possible, natural light? Their advocates say they do. In fact that is their claim for consideration. And in a sense they do. They imitate with some degree of perfection, *cloudy day lighting*. They produce no shadows, the light is almost perfectly diffused and the illumination uniform. Like cloudy day lighting they do not produce discomfort to the eye. But like a cloudy day, *they are depressing.*

Have you ever spent an evening in a hall illuminated by cove lighting? Have you become restless and depressed? Something was the matter, but you didn't know what it was. I'll tell you what it was.

It was like a miserable monotonous rainy day, with no contrasts to relieve the prevailing monotones. On a rainy day you pray for sunshine or something to cheer.

Sunshine is the greatest mental stimulant we have. Now let us analyze this mental effect of sunshine.

What is the fundamental difference between a sunny day and a cloudy day? Is it the difference in the amount of light? No. Is it the difference in the quality of light? No, for the spectrum analysis would show the two to be substantially the same.

It is in the diffusion of the light, and the fact that the far greater diffusion on a cloudy day almost eliminates shadows and lighting contrast.

The human mind requires contrast to stimulate it. It forms most of its impressions from contrast. It is happy or depressed by reason of contrast. It appreciates nature's scenery only through contrast on contour, foliage or vegetation. It enjoys possessions only as they raise its status above the ordinary level, or only by contrast with those who do not possess the same thing. It is amused or entertained only by diversions from the ordinary travel of thought.

On a sunny day there are sharp contrasts between light and shade.

The depth of shadow cast by trees, foliage and other objects is in sharp contrast to the brilliant illumination of fields and roads. The play of light seems to be a living thing. Nature is awake and stirring and not asleep.

Watch the farmer tilling his fields on a sunny day. Note how much more energy and vigor appear in his movements than on a cloudy day. On a bright day we all feel like being up and doing, while on a cloudy day our spirits lag and our thoughts are given to the hope that the sun will shine to-morrow. On a treeless desert, however, I can imagine, but for the play of color, a sunny day might be as monotonous and lifeless as a cloudy day—were cloudy days to be found in desert lands.

If I am right in my reasoning as to the mental effect of sunlight, then we ought to seek to produce contrast in our artificial illumination.

Let us consider two examples of domestic lighting.

Let us first go into a living room lighted from above and, if you please, by indirect or semi-indirect or even by the more antiquated forms of lighting. The room may be imposing or simple in its decoration and furnishings. Now let us ask: "Is it what we call home-like and cozy?"

Someone will say, "Well, your new-fangled lighting may be all right and scientific, but for real home comfort give me the old-fashioned oil lamp on the table."

Hasn't he hit the nail on the head? He wants bright sunlight on the table, and woodsy shadows round about. His mind appreciates and is made happy by contrasts.

Within the means at our disposal how can we better imitate the most pleasing effects of a sunny day with bright fields and shady woods than by lighting our living rooms by means of table lamps—gas or electric—of high candlepower—well screened and shaded by fairly dense silk shades with white silk linings? Try the effect, you architects who have not done so, of putting several such lamps in a room, and then first turning on the ceiling lights alone, and next the table lamps alone.

For an evening at home with a contented mind and real comfort give me the latter, supplemented, on occasion, by candle wall brackets, also screened with silk shades. Period fixtures with cut glass, art-glass or leaded glass globes or shades may be artistic in themselves when not lighted, but—they are failures as *mental comfort lighting devices,* when used alone; that is, without the addition of table lamps. We might well have less of period art and more of nature's art.

Our architects and decorators have been too prone to ignore the fact that our houses to-day, are used

principally at night, and that the decorative effect under artificial light is of the utmost importance. Decorative effects can be killed or made by the use of artificial light. The possibilities of artificial lighting for the production of decorative and artistic effects have been sadly neglected except on the stage.

In commercial and industrial lighting, also a certain degree of contrast in the illumination of large areas would be possible with beneficial effect upon the workers. High illumination with well diffused light and the avoidance of shadows is of course essential in those places where detail work is to be performed, but a contrast between this illumination and the lesser illumination required in intermediate areas could be provided. In shops, and in working rooms with high ceilings, modified flood lighting with limited divergence might be effective. I think we have got too far away from spot lighting, principally for the reason that the old spot lighting was too low in intensity and because the source of light was too near the work and diffusion was far too limited.

You will understand that this discussion is merely suggestive, with the hope of promoting thought along new lines, and is not intended to be specific in recommendation. If I have indicated with any degree of conviction that light can be so used as to increase man's working capacity and contentment, I am satisfied to leave the thought with you for further development.

A. G. A. Warns Against Use of Cheap Unfit Tubing

The American Gas Association has issued a warning to gas consumers against the use of cheap unfit tubing in connection with gas appliances. The association, in its statement, says that such tubing is a menace to life and is responsible for many of the accidents attending the use of gas heating devices.

"Cheap tubing is a false and dangerous economy," said Oscar H. Fogg, secretary-manager of the American Gas Association. "By its use the consumer deliberately forfeits the protection of all those safeguards in the use of gas which have taken years of study and experiment to perfect. Gas companies cannot control the sale of this tubing, but they can and do warn the public most emphatically of the danger attending its use."

Secretary Lane Warns Unless Waste Is Curtailed Government Will Be Forced to Take Over Distribution

Points Out Difficulty to Consumers Arising from Government Control

Plans for an intensive educational campaign in the economic use of natural gas by industries and domestic consumers, as a means of curtailing waste, were formulated at the conference in Washington of public utility commissioners, geologists, operators of gas properties and gas appliance manufacturers called by Secretary Lane on conservation of natural gas.

Co-operation of natural gas operators in curtailing waste in the fields, estimated at 50 per cent of the gas used, and of appliance manufacturers in producing and seeking the greater use of improved gas burning appliances, to check the enormous waste in homes, was pledged.

Secretary Lane warned that unless a concerted effort was made to check the present waste, which, he said, was threatening the exhaustion of one of the most valuable resources of the country, the Government would be forced to take control of the entire system of distribution.

Secretary Lane said in part:

"Now, the upshot of a wasteful policy, whether it is in the field or whether it is in the house or the furnace or the industry—the natural and the inevitable result—is that the strong hand of the law of the community itself, will come down upon any such industry. And I have thought that it was the province of Government always to call attention to this possibility—to the condition that existed—in order to forfend the exercise of force—and what the Government does it does by force. If we are not wise in time, if we are not appreciative of conditions that need to be remedied and are indifferent to them, sooner or later society, having learned of those conditions, will take to itself the right to be arbitrary; and society—at least in the United States—never does things half way.

"The difficulty with any kind of governmental control is that it tends to standardize—it tends to lay down a certain definite fixed rule to which everybody, no matter what their condition, must conform. And this kind of rigidity seems to be fundamental to governmental activity. All the experiments that have been made with Government ownership or Government operation confirm that statement. There is not an easiness; there is not a regard for individual conditions; we are unwilling to allow to any governmental body the right to make an exception. If an exception is made it develops trouble for the governmental body that makes it. And so in self-protection wherever the Government acts it acts along a certain rigid standard, which is a thing that those of common sense and of large experience know is not the thing that makes for fluency, for adaptability, for elasticity—and those are the things vital to industry.

"We have come upon a time in this world—not alone in the United States—when the value of all things is to be judged by the service that they render.

"As I have gone through the States where natural gas is, or has been abundant, I felt a sense of outrage at the manner in which it was burned all day and all night in the street lamps, wastefully used in industries as a fuel, wastefully used in stoves for cooking. I think we can honestly say to ourselves that we have not applied ordinary thrift, good sense, to the method of using natural gas.

"I wrote a report this year upon the text that power was to be the master of the world. We are in an intense industrial period. The probability is that we will be even more intensely competitive in the next fifty years than we have been in the past fifty years. Each nation will be struggling to save for itself all that it can in its resources and to put them to the best possible use. Nations seem to be formed not so much along lines of strategic protection as upon the line of industrial protection. With the airplane it has not become a matter of such necessity that a great river or an ocean or a mountain range should divide countries as it is that the country itself should be self-sufficient—have coal and iron and water power and oil and fields of grain. Of course we are immeasurably blessed in these regards; but our policy must be one that will keep us in pre-eminence."

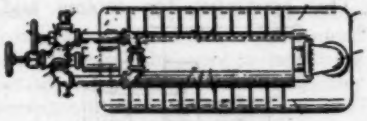
COLUMBIA GAS & ELECTRIC COMPANY declared quarterly dividend of $1.25 a share, payable Feb. 16 to stock on record Jan. 31. This places the stock on a $5 per annum basis, against present rate of $4 a year. Dividends were started at latter rate in May, 1917.

PATENTS PERTINENT TO GAS INDUSTRY

Gas Generator

Patent No. 1,327,117; described in Patent Office *Gazette*, Jan. 6, 1920, page 45. John F. Smith, Seattle, Wash., assignor, by direct and mesne assignments, to Alexander J. Boyd, Seattle, Wash. Filed Feb. 17, 1919. Serial No. 277,515. 1 Claim. (Cl. 48—104.)

This gas generator has a burner

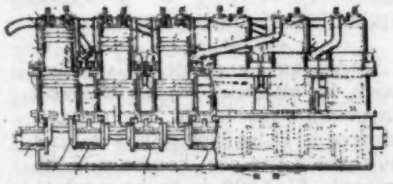


with communicating rear and side chambers. There are slots provided in the walls of the burner which communicate with these side chambers. A retort is disposed above the burner. There is also an air-and-gas mixing tube which extends axially through the retort and is connected from its rear end with the rear chamber of the burner. An oil supply pipe is connected to one end of the retort, and the other end of the retort is provided with a gas outlet. There is a needle valve on this gas outlet which is disposed in axial relation with and in front of the tube.

Internal Combustion Engine

Patent No. 1,327,345; described in Patent Office *Gazette*, Jan. 6, 1920, page 86. Lewis Mayers, New York, N. Y. Filed June 15, 1916. Serial No. 103,899. 3 Claims. (Cl. 123—59.)

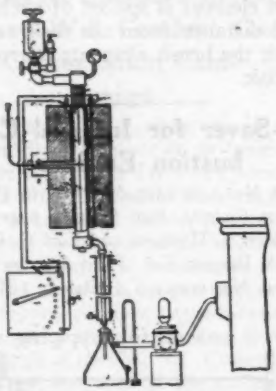
This internal combustion engine



has a plurality of step cylinders each having a working chamber and a pumping chamber. There is also a step piston for each of these cylinders. Each step piston has a section working in the working chamber and a section working in the pumping chamber. There is a means for conveying an explosive charge from the pumping chamber of one cylinder to the working chamber of another cylinder where such charge is to be ignited. The compression stroke of each of the pumping sections coincides with the exhaust stroke of its attached working section. The connection between each pair of pumping and working chambers communicate with the latter near its outer end, so that a charge is forced from the pumping chamber of one cylinder into the working chamber of another cylinder at approximately the outer dead center of the piston movement and under approximately final pressure. This eliminates re-expansion of the charge.

Manufacture of Gas

Patent No. 1,327,001; described in Patent Office *Gazette*, Jan. 6, 1920, page 23. Milton C. Whitaker and Walter F. Rittman, New York, N. Y., assignors to Synthetic Hydro-Carbon Company,



Pittsburgh, Pa., a Corporation of Delaware. Filed April 3, 1914. Serial No. 829,169. 9 Claims. (Cl. 48—211.)

This is a method for increasing the yield of an unsaturated hydrocarbon series from a hydrocarbon oil of the petroleum type. It comprises cracking the hydrocarbon when in a gaseous state under appropriate conditions of temperature, at a pressure lower than two-thirds of an atmosphere absolute, substantially as described.

Burner for Gas or Oil

Patent No. 1,327,092; described in Patent Office *Gazette*, Jan. 6, 1920, page 39. H. Forester, Cleveland, assignor of half to A. M. Skibinsky, Cleveland, Ohio. Filed March 12, 1918. Serial No. 222,022. 2 Claims. (Cl. 158—11.)

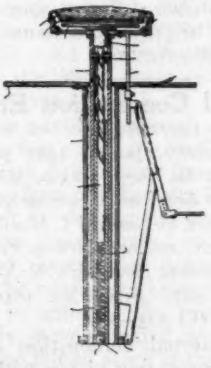
This burner is the combination of a casing with a perforated wall and

an opening forming a gas generating chamber. There is a means for feeding oil to the gas generating chamber. A tube having a nozzle opposite the opening of the casing leads from the gas generating chamber. A valve is arranged laterally of this nozzle for the purpose of directing ordinary gas at an angle across the opening of the casing and against the inner side.

Accelerator for Internal Combustion Engines

Patent No. 1,325,430; described in Patent Office *Gazette*, Dec. 16, 1920, page 521. Thomas C. Willett, Adams, Tenn. Filed March 7, 1919, Serial No. 281,114. Renewed Oct. 31, 1919. Serial No. 334,822. 5 Claims. (Cl. 74—81.)

This accelerator for internal com-



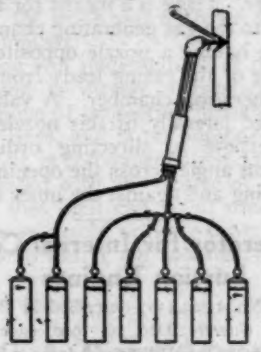
bustion engines has a cylinder and a spirally grooved spindle occupying the longitudinal center of the cylin-

der. A vertically movable revoluble tubular plunger is connected to the spindle. A stationary stud is disposed in the spiral groove of the spindle and a disk is loosely mounted upon the plunger with a rod fixed to and depending from the plunger. Levers are pivotally connected together and pivotally connected to the cylinder and the rod, respectively, and are adapted to have connection with a valve of an engine. A disk is fixed to the plunger and disposed above the disk that is loosely mounted on the plunger. There is also a pedal mounted to be tilted upon the disk which is on the plunger. This pedal is provided with a brake shoe arranged to co-operate with the second named disk.

Welding Flame

Patent No. 1,325,116; described in Patent Office *Gazette*, Dec. 16, 1919, page 463. Leo Paul Sebille, Providence, R. I. Filed Dec. 7, 1916. Serial No. 135,554. 4 Claims. (Cl. 158—117.5.)

This is an improved process of



producing a welding flame. It consists of mixing together two or more combustible gases and burning this mixture in connection with a combustion supporting gas. The proportion of the different gases is so regulated to produce a flame of the desired temperature.

Internal Combustion Engine

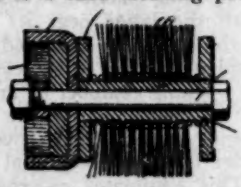
Patent No. 1,327,202; described in Patent Office *Gazette*, Jan. 6, 1920, page 60. Frederick M. Guy, Jackson, Mich., assignor, by direct and mesne assignments, of one-third to Leonard J. Moeller, Detroit, Mich., and one-third to Frederick R. Sunderman, Newburgh, N. Y. Filed Aug. 6, 1917. Serial No. 184,694. 8 Claims. (Cl 123—80.)

This internal combustion engine has a reciprocating piston within its cylinder. There are multiple intake ports and multiple exhaust ports in the cylinder head. There is also a rotary valve with multiple ports connected with and operated by the piston. Cored out pockets between the ports in the cylinder head are arranged to expose the plane of the outer surface of the body of the wall, and then to laterally displace a portion of the metal of the projecting portion to a point laterally disposed beyond the weakened line, and spaced from the surface.

Apparatus for Cleaning Boiler Tubes

Patent No. 1,325,348; described in Patent Office *Gazette*, Dec. 16, 1919, page 507. Mark K. Bowman, Montclair, N. J. Filed June 11, 1919. Serial No. 303,425. 2 Claims. (Cl. 83—64.)

This is a tube cleaning projectile

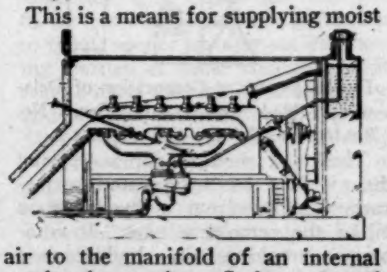


which comprises a piston and wiper element. There is cylindrical wire brush element in advance of the piston element. A radially projecting disk is located between the piston element and the brush element. The brush element is of greater diameter, and the disk of smaller diameter than the piston element. The brush element is spaced of such material distance from the disk as will permit the brush elements to overlap the disk.

Gas-Saver for Internal Combustion Engines

Patent No. 1,327,551; described in Patent Office *Gazette*, Jan. 6, 1920, page 125. Andrew J. Hansgen and Earl G. Oversmith, Denver, Col. Filed Aug. 10, 1916. Serial No. 114,235. 1 Claim. (Cl. 123—25.)

This is a means for supplying moist

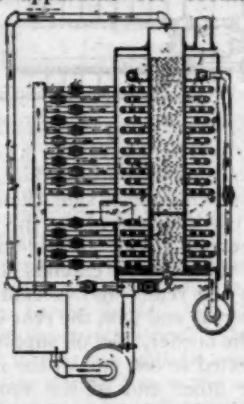


air to the manifold of an internal combustion engine. It is composed of a chamber which is located at the top of a radiator above the normal water level, and a conduit connecting this chamber with the manifold. The conduit is provided with an interrupted connection. This interrupted connection is formed by a nozzle which is secured upon the extremity of one section of the conduit, and an adjustable disk mounted upon the adjacent extremity of the other section. The nozzle and disk co-operate to supply atmospheric air to the conduit and to regulate the amount of the atmospheric air admitted.

Apparatus for Cooling and Scrubbing Gases

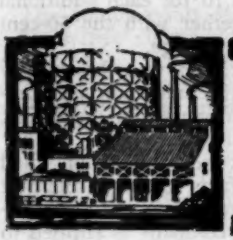
Patent No. 1,327,599; described in Patent Office *Gazette*, Jan. 6, 1920. Andrew M. Hunt, Berkeley, and Donald E. Fogg, Oakland, Cal. Filed May 25, 1914. Serial No. 840,756. 4 Claims. (Cl. 261—11.)

This apparatus for cooling and

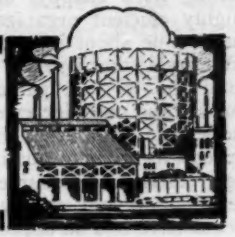


scrubbing hot gases consists of a tower with a gas inlet at one side above the bottom. There is a gas outlet at the top. Also, there are banks of cooling coils in the tower above and below the gas inlet. There is a means for spraying a liquid on the pipes and counter to the currents of gases. A header in the tower connects with the cooling pipes. Lastly, there is a means for maintaining a constant circulation, with intermittent cooling of a second liquid, through the header and pipes.

SOUTHERN CALIFORNIA GAS COMPANY, by an order of the Railroad Commission just issued, has been authorized to issue $300,000 of its first mortgage 6 per cent bonds. Of the proceeds $185,000 is to be used to pay the Farmers and Merchants National Bank. The balance is to be used to liquidate current indebtedness or reimburse the company's treasury for earnings expended for construction. The bonds are to be sold for not less than 93 per cent of the interest.



NEWS OF THE GAS INDUSTRY



George Steinwedell Elected President of Muskegon Company

George Steinwedell, former head of the gas company at Binghamton, N. Y., has been named president and general manager of the Muskegon (Mich.) Traction & Lighting Company. Mr. Steinwedell assumes charge at once and it was announced $100,000 would be spent in improving gas service. John Q. Ross, former lieutenant-governor, retiring president, will remain on the board of directors.

Master Meter Making Big Gains in Favor in Chicago

A new way of wholesaling gas—at least new in Chicago—is being successfully carried out by Barney Olson, of the Peoples Gas Light & Coke Company.

His record up to present shows approximately 3,000 apartments are now being supplied with gas through some thirty meters with distinct advantages to the consumer and the company.

Prospective builders are being introduced to the merits of the master meter through the company's Architects and Builders' Service Bureau. Under the system tenants are not annoyed with monthly bills, the ordering of service installed and discontinued and various other similar details.

A building with a master meter requires 75 per cent less piping, allowing a considerable saving of expense and the building is completed so much quicker. The owner has the "gas included" talking point to prospective tenants and he, in turn, receives the benefit of the lower rate because of large accumulated consumption. Also the owner is always in a position to install automatic water heating and other gas appliances on shore notice.

There are a number of other features that make the master meter system of distinct value.

Columbia Gas Output for Year Amounted to 50,000,000 Cu. Ft.

The total gas output of the Columbia Gas & Electric Company for 1919 was 50,000,000,000 cu. ft. The total gas sales in Cincinnati alone amounted to 14,000,000,000 cu. ft. It is reported that the calendar year 1919 was the most prosperous in the history of the company. Current assets as of Dec. 31 last were $4,021,550 and current liabilities $2,550,346, leaving a net working capital of approximately $1,500,000, practically all of which is represented by cash. The company also has in its treasury $2,274,500 of first mortgage 5 per cent bonds which have been created against expenditures made from surplus and which are available for sale at such time as the directors may deem advisable.

Pittsburgh Chamber of Commerce Will Conduct Gas Conservation Campaign

The natural gas situation in the Pittsburgh, Pa., district is believed by experts to be a far more serious question than the matter of some suffering occasioned during the recent temporary shortage. This belief was indicated when the conditions were discussed at length by gas engineers, gas company officials, consumers and others at a recent meeting in the Pittsburgh Chamber of Commerce under the auspices of the manufacturing and mining committee.

It was stated frankly that no improvement in the situation can be expected this winter.

It is probable a campaign of education will be conducted through the Pittsburgh Chamber of Commerce and the various gas companies to make public the facts relating to the gas industry, which facts, it was stated, have to a great extent been overlooked in considering the shortage which has existed here recently.

Two facts developed in the meeting were that the gas companies have made every effort possible to procure the maximum amount of natural gas for consumers, and that the supply of gas is limited and must be conserved.

8,000 Shares of Public Service Stock Disposed of in Three Weeks

In the first three weeks of the sale of its preferred stock which the Public Service Company of Northern Illinois is making in the territory through the agency of its employees the company reports that nearly 8,000 shares were disposed of.

The success of the campaign becomes more noticeable in view of the coal miners' strike and the absorbing attention directed to it because of the general industrial shutdown threatened. This proved only a small obstacle, insufficient to overcome the opportunity presented to purchase a high-grade security on monthly instalments. In all the communities in the list of nearly 200 supplied by the company's service the offering has been readily accepted.

The number of new stockholders created thus far has not yet been computed, but it may be stated that the distribution of stock is proceeding at a ratio which, when the entire number of shares in the block is sold, will add several thousand names to the list of those co-owners of the property.

Officials of the company say that the manner in which the staff is handling the job has aroused the admiration of bankers and brokers long experienced in dealing in securities. Aside from those engaged in the contract and commercial departments, few of the employees have had any practice in selling. The number of those who have directed any effort toward the sale of stock is still smaller. Yet almost overnight the employees have converted themselves into salesmen and saleswomen, com-

bining in a snappy, energetic and highly efficient organization. They have gone about it in purely American style; that is, they have considered the work a game exactly as Americans consider everything they undertake a game. They have infused into it those qualities of courage, initiative, resourcefulness, determination and energy that Europeans have had an opportunity to see in the unbeatable American doughboy.

Daily bulletins are being issued and these show the rivalry between the divisions and between teams and individuals engaged in the sale.

Randall Gas Company Obtains Increase

An order has been issued by the West Virginia Public Service Commission authorizing the Randall Gas Company of Morgantown to charge 30 cents a 1,000 cu. ft. to both its domestic and industrial consumers, with a reduction of two cents if paid before the 10th in the case of domestic consumers, and the 20th in the case of industrial consumers. The order is conditioned upon the ability of the Randall Gas Company to purchase 150,000,000 cu. ft. of gas from the Carnegie Natural Gas Company. The order is effective after the December reading, and continues in effect until Dec. 31, 1920. It was issued following the announcement of an agreement having been made by the attorneys of the gas company and those of the protestants.

Employees of Boston Consolidated Company Have Dancing Party

About 200 employees of the Boston Consolidated Gas Company attended an invitation dancing party given by the home lamp department in Palladio Hall, Roxbury, on Jan. 30.

The committee comprised Herbert Dresser, chairman; James Horsfall, William Wright and Harold Perry. A musical entertainment was furnished by Carrol Bright, Eileen Manley, Thelma Connell, Gertrude Manley, Martin Reynolds, Joseph Reynolds, Joseph Conry, Joe Haynes and Gertrude Ocha.

Among the guests were J. C. D. Clark, general manager of the company; C. J. Connell, sales manager, and representatives of every department.

$13,500,000 Set as Value of Minneapolis Gas Light Company

Filing of an affidavit setting the value of the Minneapolis (Minn.) Gas Light Company's property at $13,500,000 marked the first step in the company's fight for a higher rate.

The affidavit was introduced when the company asked for a temporary injunction restraining the city of Minneapolis from enforcing the sliding scale rate of 83 cents per 1,000 cu. ft. provided in the present franchise.

Jansen Haines, president of the Des Moines Gas Light Company, who has been connected with the gas light business for twenty-three years, made the affidavits. Mr. Haines formerly was connected with the U. G. I. More recently he was a member of the tide water land commission of the United States Government which conducted the survey of the harbor at Tacoma, Wash.

In his affidavit, Mr. Haines says that from information furnished him by the Minneapolis Gas Light Company and "from his twenty-three years experience in the gas business," he places the value of the "properties of the Minneapolis company, usable and used, and directly operated in the making and supply of illuminating gas at not less than $13,500,000."

Memphis G. & E. Files Second Rate Application

An increase in gas rates from $1 as now charged to $1.35 for the first 2,000 cu. ft. or less is asked by the Memphis (Tenn.) Gas & Electric Company in its second application filed with the Tennessee Public Utilities Commission at Nashville.

In addition to the increase asked for 2,000 cu. ft. or less, the company asks permission to charge $1.15 for each 1,000 cu. ft. in excess of the 2,000, together with a ready-to-serve charge of 50 cents per meter.

This is an increase of about 10 per cent over the rates asked for in the company's first application filed last August, and which was denied. The application insists that since even last fall the price of materials used to make gas has increased so, and the future is so uncertain, that nothing short of the higher increase asked will save the company from disaster.

The first application asked for an increase to $1.25 for the first 2,000 cu. ft. and $1.10 for each additional thousand, together with the 50-cent ready-to-serve charge.

This application was desisted by the city and the public service commission, Chairman Enloe dissenting, refused the increase.

In the second application filed many of the facts set out in the first application are repeated. It is recited that the company is entitled to earn from its gas department on an investment of $3,300,000, or thereabout, and that since the contract fixing the rate at $1 was made by the city and the company in 1917 the company has been losing money steadily.

Application Is Made for a Receiver for Memphis Company

Application for a receiver for the Memphis (Tenn.) Gas & Electric Company was filed in the United States District Court by Metcalf & Metcalf, representing the Vesta Gas Range Manufacturing Company. The Memphis company will not resist the application; instead, its attorneys, Wright, Miles, Waring & Walker, entered its appearance. This is an admission of the merits of the complaint.

Judge McCall will take up the application and will probably name a receiver.

The application is really a bill of complaint. It is based primarily upon the insistence that the company owes it $16,975.75 for gas ranges which have been sold but not paid for. Some of the ranges were shipped last June. It is recited that payment has repeatedly been demanded, and it believes the gas and electric company is unable to meet its bills.

In addition to this is an interest item of $198,000 due Jan. 1, and another of $31,250 will fall due May 1.

"The present financial distress of the company," runs the bill, "its threatened insolvency and the threatened embarrassment or breakdown of its service, in the judgment of complainant, are not due to any extravagance, inefficiency or other derelictions, but are due approximately to the tremendous increase in the cost of all materials, supplies and labor. By being compelled to attempt to furnish service and meet its obligations with pre-war revenue while furnishing such service at wartime cost, the company is now unable to meet its obligations."

The complainants say they could enforce their claims at law as a general creditor, but this would cause other creditors to do the same thing, and thereby bring on wasteful strife and controversy, which can be avoided if a receiver is appointed. Wherefore, the Federal court is asked to take unto its custody all the property of the company, with the usual powers of a receiver in such cases. Such action, of course, will mean an injunction against all creditors from starting general creditor suits.

Improvement in Gas and Electric Earnings Reported by Byllesby Company

In the past the H. M. Byllesby Company interests have been identified with the financing, development and management of gas and electric companies. All of the companies will be conducted broadly, as in the past, as subsidiaries of the Standard Gas & Electric Company. Their record during the war was highly creditable from the standpoint both of the investor and the consumers served in the 460 cities and towns, with 2,200,000 population, in sixteen States. These companies in 1918, by means of additional volume of business and rate increases, held their net earnings about even with the preceding year, despite unprecedented advances in operating expenses.

In 1919 the volume of business did by this group of properties continued to increase rapidly and there was a pronounced gain in both gross and net earnings. For the twelve months ended Oct. 31, 1919, the combined utility subsidiaries of the Standard Gas & Electric Company (not including the Shaffer Oil & Refining Company) reported as follows:

	1919	1918	Increase
Gross earnings	$26,504,601	$22,437,432	$4,067,169
Net earnings	9,764,302	8,614,980	1,149,322

Indicating the growth of business during the past five years, comparisons of earnings for the same group of companies, which serve Minneapolis, St. Paul, Louisville, Oklahoma City, Pueblo, San Diego, Stockton, Tacoma and many other cities, with the twelve months ended Oct. 31, 1914, are interesting:

	Gross Util. Earnings	Net Util. Earnings
Year ended October, 1919	$26,504,601	$9,764,302
Year ended October, 1914	14,264,655	6,635,553
Increase	$12,239,946	$3,128,749

California Southern Counties Company Petitions Rate Increase

Declaring that its present rates for manufactured gas are not compensatory, the Southern Counties Gas Company of California has applied to the Railroad Commission for authority to increase its charges for manufactured gas supplied to the city of Santa Barbara and the incorporated communities in Santa Barbara County, Cal. The company claims that from March 1 to December 1, 1919, its total operating revenue was $122,714.10, and the total operating expense, exclusive of depreciation and interest, $125,210.82, a loss of $2,469.72. Rates that will yield a return of 8 per cent were asked by the company.

It is declared in the company's application that it has made every endeavor to obtain a supply of natural gas for distribution in Santa Barbara County without success and that "at the present time there is no prospect of obtaining natural gas for Santa Barbara County in the near future."

Indiana Commission Orders Continuance of Increased Rates

The Indiana Public Service Commission has authorized the Northern Indiana Gas & Electric Company to continue in effect after Dec. 31, 1919, the gas rates now in effect in South Bend, Mishawaka, Hammond, Whiting, East Chicago, Fort Wayne and Michigan City, Ind. The present increases, which were authorized Dec. 28, 1917, were to have expired last month.

Blackstone Valley Gas Men Hold Smoker-Social

Dr. Stanley Sprague Delivers Address on "Preventable Accidents"

The Blackstone Valley Gas & Electric Company's Social Club held a smoker for the men of the company at the club quarters adjoining the works in Pawtucket, R. I.

The club comprises in its membership the men employees of the Blackstone Valley Gas & Electric Company and of the Pawtucket Gas Company, some 275 in number, and the club quarters, provided by the corporation, are commodious and afford recreation and lounging quarters for the men when off duty.

The social arranged is the first in a series planned to be held during the next few months. It was in charge of the following committee: R. C. Brooks, manager of the Blackstone Valley Gas & Electric Light plant; R. Buckminster, manager of the Pawtucket Gas Company's plant; George A. Stiness, treasurer of the Pawtucket Gas Company; Roland Perley, sales manager of electric appliances, and Charles E. Hilton, sales manager of gas appliances.

Dr. Stanley Sprague, member of the house staff at the Memorial Hospital, Pawtucket, addressed the members of the club on the subject of "Preventable Accidents."

Rochester Company's New Employees' Restaurant Will Open Feb. 15

It is announced that the new restaurant for employees of the main office of the Rochester (N. Y.) Gas & Electric Corporation will be opened in the building at Front and Andrews Streets not later than Feb. 15. Difficulty has been experienced in securing the necessary equipment, but the last pieces are now being received and the changes in the building required to fit it for its new uses are about completed.

A new hardwood floor has been laid and the floor itself reinforced with steel girders for the support of the heavier pieces of equipment. The ornamental steel ceiling and the newly decorated walls give the dining room a pleasant aspect. There will be eighteen tables, each seating six persons, and it is expected that the lunch room will serve 150 persons on the opening day, the patronage increasing until the total capacity of 300 is reached. A self-serve system will be used and the meals will be served at cost price.

As might be expected, the equipment will be all of gas and electric operation. Potatoes will be whirled through an electrical peeling machine where they will part with their jackets in record time. They will then be thrown into a steam kettle heated with gas and from that will be transferred to an electrical masher which will beat them to a lightness never excelled by Southern mammy. There will also be an electric dishwashing machine and ranges, steam tables and a pastry oven heated by gas.

The restaurant will be in charge of Mrs. G. Hough, who for some years was chief demonstrator for the gas company and who has had charge of the other lunch room at the Rochester gas station since its inauguration.

New Equipment Helps Holyoke Gas Department Make Favorable Showing

Manager John J. Kirkpatrick of the Holyoke (Mass.) Gas and Electric Department filed his annual report at the annual meeting of the Board of Aldermen. The report contains exhaustive tables of facts and figures on the gas and electric plants. The receipts amounted to $888,356.13 and the total expenditures, including depreciation, bond payments, interest, operation and maintenance, amounted to $799,-904.60, leaving an excess of receipts over expenditures of $88,451.53. From this the Board of Aldermen took $20,000 to apply to the loan account, leaving $68,451.53 in excess of receipts over expenditures and transfer.

Manager Kirkpatrick says in part: "The amount of gas sent out in 1919 was 276,862,400 cu. ft., an increase of 5.6 per cent over the send-out in 1918.

"During the year the old gas-exhausting and tar-extracting apparatus was replaced with a huge speed exhauster, tar extractor, washer and rotary meter. The capacity of the apparatus replaced was only 500,000 cu. ft. of gas per day, while the capacity of the new apparatus installed is 2,000,000 cu. ft. of gas per day, of the best type made and economical to operate. It is placed in a remodeled fireproof room and should take care of the cleaning of water gas for many years to come.

"There has also been erected a new ash-handling apparatus, consisting of an electrically driven, self-dumping hoist bucket, which elevates the ashes and dumps them into a bunker overhead. From this bunker they are carted away by trucks. No manual labor is required to load either into the bunker or into the trucks, so that the apparatus is operated at small cost and with a minimum of attention.

"It is not expected that any additional equipment will be required at the gas works during the coming year.

"Bonds amounting to $57,500 have been retired out of the receipts of the year."

Construction Notes

N. Y. Consolidated Co. Plans $5,000,000 Expenditure for New Construction

The Consolidated Gas Company, of New York, contemplates spending over $5,000,000 in new construction and improvements. The main part of this expenditure will be for the enlargement of its Astoria plant. This will add to manufacturing capacity 30,000,000 cu. ft. of water gas daily.

Lowell Gas Company Will Install New Boilers

The officials of the Lowell Gas Light Company have decided to put in two new 500-h.p. Babcock Wilcox water tube boilers to be equipped with the Coxe Traveling Stokers.

The old boilers will be removed to temporary locations and will be used until the new ones are put in place. When the new boilers are in operation one of the old boilers will be kept to burn an oil by-product, which at the present time is used as fuel by mixing with coke. The work of installing the new boilers is under the direction of John A. Stevens.

Scranton Gas & Water Company Will Erect New Building

Plans for the new home of the Scranton Gas & Water Company to be erected in the 100 block on Jefferson Avenue, Scranton, Pa., have been prepared by Architect E. H. Davis. Within a short time the contract for the erection of the steel work will be let. Work is to be started on razing the building now on the site April 1.

President Worthington Scranton, of the company, says that work will be hurried along on the structure and it will be occupied before the coming of next winter. The building will be of four floors.

$25,000 Improvements Under Way for Colorado Springs Company

Improvements which are to be made to the gas plant of the Colorado Springs Light, Heat & Power Company, of Colorado Springs Colo., have started. C. N. Wheeler is in charge of the work.

The largest part of the work will include a new water-gas house of steel and brick construction, a retort house of steel and stucco, all absolutely fireproof, and an addition to the meter house. The cost of the work is to approximate $25,000.

The improvements are in line with the company's plans to better the service for the big peak load which comes in the tourist season, as well as to improve the year-around service.

Gary Company Installing Boilers and Purifying Equipment

New boilers and purifying equipment have been installed in the plant of the Gary (Ind.) Heat, Light & Water Company, and the mammoth new gas container will be completed by April 1.

The new gas container when completed will be 186 ft. in height and 144 ft. in diameter. It will hold 2,000,000 cu. ft. of gas and will be one of the largest in the Middle West.

The old container, erected twelve years ago, has a capacity of only 250,000 cu. ft. of gas, which is only sufficient to supply the city for about two hours. The new tank will hold a two days' supply.

Gary is now consuming 30,000,000 cu. ft. of gas per month, it was said by Vice-President Fitzgerald, although at times the consumption reaches 120,000 cu. ft. per hour.

These improvements to the gas plant, which are now almost ready to be placed in operation, cost the Gary Heat, Light & Water Company approximately $300,000. Construction has been in progress about one year.

1900 to 1917. This represents a depreciation of 15 per cent. The court found that the earnings of the company in fourteen years were $3,643,364 and that its plant and land had a reasonable and fair value of $2,502,695. Even with the increased cost of labor and material shown by the company the court held that the alleged confiscation under the 80-cent rate was not proved.

Well Flowing 250,000 Cu. Ft. Daily Discovered in Ohio

A heavy flow of shale gas has resulted from a well drilled on a property at Eagleville, Ohio, ten miles southwest of Ashtabula. At a depth of 137 ft. a 40-lb. pressure was developed, which was estimated by gas men to be worth at least a quarter of a million cubic feet per day. The well was being drilled for private purposes, and came in much stronger than was anticipated.

Oswego Gas Company Granted 25 Per Cent Increase

Because it is sustaining an operating deficit, the Public Service Commission, Second District, authorized the Oswego (N. Y.) Gas Light Company to charge $1.50 per 1,000 cu. ft. up to 50,000 cu. ft. for one year from Jan. 1 and until further order of the commission.

Evidence before Commissioner Thomas F. Fennell showed a fixed capital account for 1918 of $127,644 and bonded debt of $50,000. Revenues for the first six months in 1919 were $7,307 and expenses $9,580, leaving a deficit of $2,272. Interest amounted to $2,047, showing a net loss to the company for six months of $4,320 and for the year $8,641. The company asked for the $1.50 rate to make up the operating deficit. Commissioner Fennell holds that it seems only fair that, in view of the operating deficit, the asked-for 25 per cent increase should be allowed. The company was permitted to increase its rate to $1.25 on April 17, 1919.

Certain changes are under way which, it is expected, will save about $3,000 in operation annually, and the 25-cent increase will produce added revenue of about $2,500 a year. On this basis the $5,500 will change an operating loss to an operating profit of about $1,000 a year.

Interstate Company Wants to Purchase Indiana Public Service Company

Petitions have been filed with the Indiana Public Service Commission by the Interstate Public Service Company for an increase of gas rates in Bedford and Seymour; for authority to purchase the property of the Indiana Public Service Company of Aurora, and for authority to issue and sell $89,000 first and refunding mortgage bonds to reimburse the treasury for expenditures made to capital account.

The company asks for an increase of 40 cents a 1,000 cu. ft. in the manufactured gas schedules at Bedford and Seymour.

In seeking authority to purchase the Aurora property the petition sets out that Martin J. Insull, of Chicago, Ill., controls all the stock and notes of the Aurora company. The petition says that the Indiana Public Service Company has $150,000 common capital stock, $50,000 preferred stock, $100,000 mortgage bonds and $94,030.72 notes outstanding.

E. N. Wrightington Makes Statement Regarding Daylight Saving

Directors of the Boston (Mass.) Consolidated Gas Company have recently made a statement to the press which says that they favor the petition for the adoption of a bill providing for daylight saving in Massachusetts. One of the petition blanks received in the State Department of Massachusetts was signed by E. N. Wrightington, the vice-president and treasurer, and by Dana D. Barnum, vice-president and chief engineer.

Mr. Wrightington declares that the talk that gas companies are generally opposed to the idea is erroneous. He says he has yet to learn of anyone interested in the gas business opposed to the daylight saving plan.

United States Senator William M. Calder, of New York, a proponent of the daylight saving scheme, declares that after an investigation he finds no facts to substantiate the charges that gas and electric light companies have opposed the plan.

NO. 2 OF THE NEW SERIES THAT SPEAKS FOR ITSELF

Construction Notes

Increased Consumption Demands Extension of Plant in Washington

Consumption of gas has increased in the District of Columbia during the past year to such an extent that the Washington (D. C.) Gas Light Company must begin considering ways and means of enlarging its gas-holding power, according to the report of Howard S. Reeside, president of the company, which has just been submitted to the stockholders.

President Reeside also tells the stockholders that it will be necessary to have the present gas rate, 95 cents per 1,000 cu. ft., continued after April 1, the date of expiration of the existing rates. Mr. Reeside states that it may be necessary at this time to ask the Public Utilities Commission for a higher rate, but adds that no decision to this effect has been reached.

The need for extension of the works of the company is discussed at length in the report, and it is stated that the consumption of gas, instead of decreasing after the war, has taken an unusual increase with all signs pointing to a greater consumption in the near future.

To make the needed extensions of the manufacturing apparatus will require additional capital, the report further states. Analoston Island, of eighty acres, which was purchased by the company some time ago, is recommended for the location of any additional manufacturing apparatus or gas-holding tanks.

The present board of directors was re-elected for another term. The members are Howard S. Reeside, Ord Preston, Guy F. Whiting, Joseph Leiter, James M. Green, Daniel Fraser and John D. McIlhenny.

Rome, Ga., Company Installing High Pressure System

Supplies and material have been received for improvements to the plant of the Rome Municipal Gas Company, and work has already begun. Manager F. J. Cahill states that the work will include the installation of a high-pressure system that will overcome many of the difficulties of the past.

Ashtabula Company Preparing Plans for Manufactured Gas Plant

At the annual meeting of the board of directors of the Ashtabula (Ohio) Gas Company the question of failure of natural gas supply was discussed, and while no definite action was taken it was the sense of the meeting that gas service in Ashtabula should be continued if possible. The manager was instructed to prepare plans for the erection of a manufactured gas plant and to see what arrangements should be made for financing the same and to take up negotiations with the city authorities regarding rate to be charged for manufactured gas.

ADVERTISEMENT

Bids: March 10, 1920.

STEAM POWER PLANT and WATER GAS PLANT EQUIPMENT, Tallahassee, Fla.

Sealed proposals will be received by the Board of Commissioners of the City of Tallahassee, Fla., at the City Hall until 4:00 o'clock P. M. of Wednesday, March 10, 1920, for furnishing and erecting steam and gas plant apparatus, as follows:

STEAM PLANT EQUIPMENT

1—500 K.W. Steam Turbine
2—Condensers
2—225 H.P. Water Tube Boilers
Superheaters
Feed Pumps
Feed Water Purifying System
Spray Cooling System
Motor Generator Set

CARBURETTED WATER GAS PLANT APPARATUS

10,000 cu. ft. per hour Generator
Carburetor
Superheater
Boiler
Scrubber
Hydraulic Seal
Purifier
Blower
Gas Storage Tanks
Oil Storage Tanks
Pumps, Piping, Gauges, etc.

Each proposal must be accompanied by a certified check in the sum of 10 per cent of the amount bid, made payable to the Board of Commissioners of the City of Tallahassee, Fla., as evidence of good faith on the part of the bidder.

Specifications may be obtained after February 25th upon deposit of $20.00 by addressing direct the Engineers at Charlottee, N. C. Such deposit will be refunded upon the return of the specifications in good condition.

All bids must be made on blank forms provided for this purpose.

The Board reserves the right to reject any or all bids.

MEES & MEES, Consulting Engineers,
310 Trust Building, Charlotte, N. C.

A. H. WILLIAMS, City Clerk.

Michigan Light Company Will Spend $165,000 in Expansion

Improvements on the gas works and plant equipment of the Michigan Light Company will be made during 1920 at a cost of $165,832.14, according to a schedule just filed with the Michigan Public Utilities Commission at Lansing. For gas mains and extensions covering practically the entire Pontiac district the company will expend .$89,848.28, while $22,414.65 more will go for installation of gas service. The expenditures of the Consumers Power Company for 1920 in Pontiac will total $19,000, the schedule sets up.

Manager B. G. Campbell, of the Michigan Light and Consumers Power companies said he was unable to outline in detail the expansions covered by the expenditures thus shown to be approved, since he had not yet learned what items in his recommended schedule had been approved at the main offices of the corporation. His original recommendations contemplated a general expansion of the gas service for the entire city he said, but pending formal notice of the action taken by the corporation's main office he could only surmise the nature of the improvements.

Construction of New Office Building for Meriden Co. Will Start at Once

At a recent joint meeting of the directors of the Meriden (Conn.) Gas Light Company, it was decided to go ahead with the construction of the proposed new office building on West Main Street. The contract for the same, involving an expenditure of upwards of $125,000, was awarded to Lewis A. Miller, who will begin work at once.

The building will be erected by the gas light company, but as it will be occupied by the electric light company also, the directors of the latter company were invited to attend the meeting which reached the decision to build at once. The building will be of brick, with lime stone front, and the west side, facing the passway, will also be of lime stone for a distance back from the street.

The building was planned by Charles Scranton Palmer, of New Haven, who has designed an absolutely fireproof building. It will have a frontage of 48 ft. and will be 100 ft. deep. It will be two stories high, with a basement, and the foundation will be built with a view to adding two more stories to the structure, should it become necessary or desirable at any time in the future.

Iowa Railway & Light Company Enlarges Its Gas Plant

Enlargement of the gas-making plant of the Iowa Railway & Light Company, in Marshalltown, Ia., that will more than double its gas production capacity and eliminate the menace of no gas during another coal miners' strike, has begun. The company is going to duplicate its coal gas plant with an oil gas plant. The capacity of the double equipment, when the new plant is finished, will be increased from 300,000 cu. ft. per day to about 800,000 cu. ft.

It is expected that the duplicate plant's equipment will be completed and ready to operate in about five weeks. The cost has been placed at $35,000 to $40,000. At an additional cost of $10,000 the company is going to install automatic coal handling machinery and equipment in the boiler room of its electric power plant.

The Western Gas Construction Company, of Fort Wayne, Ind., is installing the machinery for the oil gas plant. The machinery has been delivered and one of the old buildings of the gas plant has been remodeled and enlarged and in it the equipment will be placed. The gas storage tank is of sufficient size to handle the increased output when both plants are working. An oil storage tank that will hold 40,000 gallons, or four tank cars of oil, is to be built.

The apparatus to handle steam coal, from the time it is dumped from the cars until it goes under the boilers, is to be installed in the boiler room. This apparatus is known as an automatic steam conveyor. The steam creates a vacuum and sucks the coal from the pits, into which it has been dumped from the cars, then blows it into the bunkers over the boilers, or into the storage bins in the boiler room. From the bunkers or storage bins the coal is fed into the hoppers of the automatic stokers of the boilers.

The equipment will save the handling of coal with shovels, except when coal is delivered in other than dump cars, when it must be shoveled into the pits.

Chicago Company Negotiating for $17,000,000 Loan for New Plant

Negotiations for new financing are being made through New York bankers by officials of the People's Gas Light & Coke Company of Chicago. While officials have not announced the amount of money desired, despatches from Chicago indicate that it is approximately $17,000,000.

Part of the new capital, it is understood, will be used for the construction of a large gas plant on the Drainage Canal in Chicago. That plant will have a capacity for manufacturing about 8,000,000,000 cu. ft. of gas annually. A city ordinance requires that the plant be completed next summer.

Pacific Gas & Electric Plans Wide Spreading of Its Service

Will Spend $3,170,000 for Improvements in Gas Department

The Pacific Gas & Electric Company, which has taken over the properties of the Sierra & San Francisco Power Company under a lease running for fifteen years, has announced that it will be necessary to expend during the year 1920 for additions and enlargements to its system, approximately $15,000,000. This money will be distributed among the different activities of the company as follows

Electrical department	$11,406,000
Gas department	3,170,000
Water department	229,000
Railway department	166,000
Steam department	12,000
Miscellaneous	79,000
Total	$15,062,000

In the gas department $3,170,000 includes an additional gas generating set in Oakland and improvements to that plant amounting to $215,000. It also covers a 2,000,000-ft. gas holder in Berkeley. A new gas generating set is also included in San Rafael. The Sacramento plant will be provided with an additional generator costing more than $100,000, and a high-pressure gas transmission line will be constructed between Sacramento and Woodland. Additional gas sets will be installed at Santa Rosa and Vallejo, and improvements made in the San Francisco plants.

Personal Notes

Fred P. Hamilton Elected Chairman of Board of Omaha Company

At the annual meeting of the Omaha (Nebr.) Gas Company held recently, the office of chairman of the board was created and Fred P. Hamilton, who has been a member of the board for a number of years, was elected to the new office. Mr. Hamilton succeeds his brother, the late Frank T. Hamilton, as the representative of the Hamilton interests in the gas company.

Roys Nelson Strohn Victim of Influenza

Roys Nelson Strohn, vice-president of the Western United Gas & Electric Company, of Aurora, Ill., died at his home in Downer Place, Friday afternoon, Jan. 23, in his forty-sixth year. He had been ill a week and his condition was considered serious only two days before his death when influenza-pneumonia set in. The funeral was held at his home in Aurora, Ill., and the body was then taken to Los Angeles, Cal., for burial.

The sudden passing of Mr. Strohn, widely known as he was, came as a shock in the community in which he lived. He was a man of large business affairs who moved with dignity, modesty and pleasantly among his associates, and who identified himself with all public affairs looking toward civic betterment. Mr. Strohn had been actively at his duties until a week before he suffered what was first thought to be a slight attack of influenza. Then pneumonia set in of such a virulent type that the best of medical skill and attendance availed nothing.

Roys N. Strohn was born in Michigan in 1874, and spent his boyhood in that State. Later the Strohn family moved to Los Angeles, Cal., where Mr. Strohn attended the high school and later graduated from Leland Stanford University.

In 1899 Mr. Strohn stopped in Aurora, Ill., on his way to Michigan, and at this time he was prevailed upon by his brother-in-law, Ira C. Copley, who is president of the Western United Company, to locate in Aurora. In 1900 Mr. Strohn and Colonel Copley organized the LaGrange Gas Company and Mr. Strohn personally superintended the installation of a gas plant in LaGrange, Ill., and became manager of the company. Several years later, when the LaGrange company was merged with the companies of Aurora, Joliet and Elgin into the Western United Gas & Electric Company, Mr. Strohn became vice-president and treasurer of the larger company, which position he held until the time of his death.

William H. Taylor Elected President and to Board of Omaha Company

William H. Taylor has been elected a member of the board and also president of the Omaha Gas Company of Omaha, Neb. These two positions were made vacant by the death of Frank T. Hamilton.

George W. Clabaugh continues as vice-president and secretary, in which capacity he has served for many years.

Mr. Taylor brings to his new position an extended experience in the gas business. Graduated in 1902 from Stephens Institute of Technology, Hoboken, N. J., with degree of mechanical engineer, practically his entire time since then has been spent in the gas business. He has had to do with the construction or operation of gas plants at Rochester, Schenectady, N. Y.; in New York City, at Baltimore, St. Paul, Duluth, Cincinnati, Indianapolis, Des Moines and Burlington, and at Harrisburgh and Ardmore, Pa., and Gloversville, N. Y.

Mr. Taylor first came to Omaha in 1907 and was here for about a year and a half in charge of the manufacture of gas for the Omaha Gas Company. After an absence of three or four years, spent in construction work in other places, he returned to Omaha in the fall of 1912 as manager of the Omaha Gas Company, which position he has filled continuously to the present time.

Bert H. Jardine, of the Knoxville (Tenn.) Gas Company, has been appointed one of five members of a special committee of the American Gas Association. This committee, composed of gas industry experts, will study methods whereby unprofitable consumers' operations may be put upon a profitable basis. The committee is one of several to conduct organized surveys and investigations, as a part of the work of the commercial section of the American Gas Association.

Mr. Jardine went to New York recently to attend a meeting of the committee, and is now undertaking some research work and making plans for further activities.

F. W. Stone was re-elected secretary-treasurer and general manager of the Ashtabula (Ohio) Gas Company at the recent annual meeting.

Henry M. Brundage, formerly assistant secretary of the New York Consolidated Gas Company, has been elected secretary of that company to succeed Robert A. Carter, vice-president, who for many years had been vice-president and secretary.

J. H. Eustace, an engineer of the Peoples Gas Light & Coke Company, of Chicago, Ill., has been elected vice-president of the company.

Charles R. Drum, industrial engineer of the New Haven (Conn.) Gas Light Company, left the employ of that company on Feb. 1 to take charge of the sale and installation of the Reeves Proportional Gas Mixing Device for the Reeves Manufacturing Company of Milford, Conn.

Charles G. M. Thomas has been elected a vice-president of the New York Consolidated Gas Company. The trustees of the company recently created this vice-presidency which Mr. Thomas now fills. Formerly he was treasurer of the company.

Benjamin Whitely, formerly assistant treasurer, has been elected to treasurer of the New York Consolidated Company, succeeding Charles G. M. Thomas.

H. S. Jackson, president of the Sierra & San Francisco Power Company prior to its amalgamation with the Pacific Gas & Electric Company, has been made a vice-president of the Pacific Gas & Electric Company.

P. M. Downing, who has been chief engineer for the Pacific Gas & Electric Company, has been made a vice-president of the company.

The Safety Gas Main Stopper Company on Jan. 22 moved to 943 Fulton Street, Brooklyn, N. Y.